THE BRITISH PTERIDOLOGICAL SOCIETY

BULLETIN

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edited by
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BULLETIN

Vol 1 1973 No 1

A MESSAGE FROM THE PRESIDENT

A new publication appears in our midst to take over from the Newsletter which over the past few years established itself as our second journal and has now served its purpose. It began as a development of our annual foolscap news-sheet, commencing with No 5 of the same number sequence, in an attempt to silence the many criticisms addressed to the Secretary by members who found little in the Gazette to satisfy their needs. We are very gratified with the success it has achieved during the six years of its life, but with the issue of No 10 in 1972 which seemed a reasonable point at which to end the first volume, the question arose whether to carry on with a second volume of a flimsily bound journal with the rather unsuitable title of "Newsletter", or to start afresh with a better named one in a more permanent format which would be more in keeping with the position it has achieved in the Society.

We accordingly present to you Volume 1 No 1 of the British Pteridological Society Bulletin which will continue the objects of the Newsletter to serve chiefly the non-scientific membership, and to supply all information of interest to our members. As with the Newsletter its success will depend on the supply to Jimmy Dyce of suitable papers – he has been well-supported in the past and I hope this happy state of affairs will continue.

Henry Schollick.

SECRETARIAL NOTES

On the Agenda for the AGM this year appeared an item concerning the change in the name of the Society to the *British Fern Society.* For many years some members have desired this change which they feel can do nothing but good for our image. They consider the name "Pteridological" creates only amusement in many people's minds, it is not linked with ferns by the layman and has a deterrent effect on our membership increase. On the other hand many members have a nostalgic affection for the old name which they contend covers more accurately our wider field of interest – "Fern" is more restrictive and does not include the fern allies. These points of view were aired at great length at the AGM, along with the important one that as few of our widely scattered members can attend an AGM, any decision reached would possibly not reflect the majority opinion. It was decided, therefore, to have a postal vote and a voting paper is enclosed with this Bulletin. We request earnestly *all* members, particularly those with strong views either for or against the change, to complete the form and return it to the Secretary – as soon as possible, please, while the matter is still fresh in your mind. The result of the postal vote will be taken as the final decision and submitted to the 1974 AGM for confirmation.

SUBSCRIPTIONS became due on 1st July – have you paid yours, OR – have you sent the wrong amount? The subscription rate was raised this year to £2.00 for members, £1.50 for student members and £3.00 for subscribers, but many members would appear to have taken no notice of, or overlooked, the circular we sent out, and amounts of £1.25 continue to arrive. Some members have sent me £3.00, seemingly under the impression that because they are not active in the life of the Society they are regarded as *subscribers*; this is not so – all individuals are *members*, and universities, institutions and other corporate bodies constitute our *subscribing* membership.

SUBSCRIPTION RECEIPTS will not be issued in future unless specifically asked for. This is an economy measure.

MEETINGS CARDS 1974 are enclosed with this Bulletin to all inland members. Overseas members, visiting Britain, can obtain them on application to the Meetings Secretary, A J Worland, 102 Queens Close, Harston, Cambridgeshire.

READING CIRCLE – For the information of our newer members we have a Reading Circle which circulates the American Fern Journal among those interested. This is issued quarterly and contains much valuable information for those seriously interested in ferns. Please apply to the Secretary who will add your name to the list.

THE CAPEL MANOR FERN COLLECTION – The Society is helping to build up a collection of British hardy ferns and their varieties at Capel Manor Horticultural Centre, Waltham Cross, Herts, and at our autumn meeting held there this year we were able to see that the work of building up the Collection is proceeding well, but more plants are needed. Gifts of ferns will be gratefully accepted and members wishing to help should contact David Russell, 20 York Avenue, Stanmore, Middlesex.

COFFEE EVENING – A R Busby, The University of Aston in Birmingham, Gosta Green, Birmingham, B4 7ET, would like to hold a Coffee Evening at his University for members living in the West Midlands – and elsewhere; all are welcome – so that they can get to know each other and discuss their fern problems. This is an excellent idea which we hope other areas will copy and it could lead to a new development in the life of the Society of regional meetings which would help to bring our scattered membership into closer contact. If you are interested please write to A R (Matt) Busby direct, and we very much hope he will get an encouraging response.

SECRETARIAL ASSISTANCE – The Society needs a treasurer and an assistant–secretary. Over the past few years the work of running our affairs has increased greatly and is now more than the Secretary can cope with alone. Members living not too far distant from him would be preferred so that personal contact could be maintained – a constant need for correspondence with assistants would defeat the object the Secretary is striving for, more time to devote to other interests at present badly neglected, and – since he is not *quite* so young as he used to be ! – more leisure.

FINANCIAL STATEMENT AS AT 30 JUNE 1973

ORDINARY ACCOUNT

Income

1971/72	1972			£	£
	30 June	To	Balance		172.39
£ 474			Subscriptions		619.07
2			Donations		1.00
			Sales –		
324			Gazettes and Newsletters	132.45	
18			Victorian Fern Craze	26.70	
4			Students Guide	9.30	
–			Profit on Books	20.00	
22			Sundry	3.82	192.27
20			Interest on Deposit Account		49.82
					£ 1034.55

Expenditure

86	By Payment	Metloc A/C Newsletter No 10		106.00
–		Gilchrist Bros Leeds	27.64	
–		Neill & Co Ltd	29.50	57.14
		A/C plates & illustrations Gazette Vol 10 pt 5		
		Subscriptions –		
		Royal Horticultural Society	5.00	
10		Council for Nature	5.05	10.05
33		Printing and Stationery		71.25
–		Charges on Current Account		8.45
88		Secretarial and Editorial Postage		107.80
5		Meetings Expenses		12.51
–		Advertisement in Garden News		3.00
200		Transfer to Publications Account		150.00
350		ESTIMATED cost Gazette Vol 10 pt 6		350.00
		Balance in hand – ESTIMATED		158.35
				£ 1034.55

PUBLICATIONS ACCOUNT

1972 June 30	To	Balance	848.74
1973 June 30		Transfer from Ordinary Account	150.00
		Balance in hand	£ 998.74

THE ANNUAL GENERAL MEETING – 6 OCTOBER 1973

The 70th Annual General Meeting was held at the Capel Manor Horticultural Centre, Waltham Cross, Herts, and was attended by 28 members. A good year was reported, with the membership now standing at 451, a large increase in spite of several resignations due to the subscription rise, lapsed memberships and deaths. The work of the Society is growing fast and the Secretary appealed for help – a treasurer and an assistant-secretary are badly needed to remove some of the routine work from his shoulders. The meetings were very successful although attended by fewer members and all of them were blessed with very good weather. A big event of the year was, of course, the raising of the subscription rate and it is gratifying that the members, with a few exceptions, have accepted a very large increase and continue to support us.

The Meeting was held in conjunction with the autumn meeting and members were able to see the progress made in the establishment of the collection of British hardy ferns and varieties at Capel Manor. In the discussion it was brought out by the President how uncertain the survival of collections in private hands can be, depending very much on the disposal arrangements made by owners, but in public ownership they have a very much better chance of living on indefinitely. We are fortunate, therefore, to have behind us a place like Capel Manor to which collections in danger can be removed.

Henry Schollick was elected to the Presidency for a second term of Office, and our five Vice-Presidents remain unchanged, as do all the officers. The two members to retire from the Committee were Dr Anne Sleep and Dr F M Jarrett and we thank them for their services to the Society while in office. They are replaced by J A Crabbe and a newer member, A R Busby, who takes a very active interest in our affairs.

The most important subject for discussion was the proposed change from 'Pteridological' to 'Fern' in the name of the Society. This engendered quite a lot of strong feeling, both for and against, and the final decision was to place it before the membership as a whole and have a postal vote, the results of which will be put to the 1974 AGM for confirmation.

Our finances are healthy and with reasonable care can continue so for some years, due to the increased subscription rate which will bring in much more revenue, and our change to offset-litho printing for the Gazette which has brought down the cost appreciably while still giving us an excellently produced journal. This year the Newsletter finishes its life and is replaced by the Bulletin, with similar contents, but in a more permanent format, the same size as the Gazette and also produced in offset-litho. We are assured by the printers that the cost will not put an excessive strain on our resources and will be much less than we anticipated.

The Financial Statement shows a good increase in subscription revenue, but a big drop in sales of literature. The cost of the Newsletter rose as did the expenses of running the Society and the new postal rates which came into force this autumn are not going to help. We had hoped to hold the Gazette cost down to the estimated figure of £350 as we did with the previous issue, but at the last moment after the Financial Statement was printed, we received the bill which shows an increase of £80 on the estimate. The final balance shown has therefore to be reduced by this amount, making it £78.35.

MEETINGS 1973

The *spring indoor meeting* was held at the British Museum (Natural History) on 10 February. A very good attendance of 37 members listened to a very interesting talk by Dr Chris Page on the Equisetums, not the non-exciting plants many of us imagine them to be. After the buffet meal members slides on the theme "Alpine Pteridophytes" were shown.

The *autumn meeting* held in conjunction with the AGM at Capel Manor Horticultural Centre, Waltham Cross, Herts, began with a look round the Gardens and an inspection of the fern collection being established there. We had an attendance of only 28, not so good since the AGM was part of the meeting. This was rather lengthy and put back our timetable so that after an enjoyable buffet meal many members had to leave before Jimmy Dyce gave a talk on "Fern Variation", followed by a show of members slides taken at meetings during the year. Not many members contributed slides and we hope this will become a stronger feature in future years. Professor Husnu Demiriz, a member from Turkey who was on a short visit to this country, received a warm welcome and we were delighted to enrol a new member from the United States, Mrs Miriam Wagner, who is staying over here for a year.

We had the usual large attendance on the annual *Visit to the Fern Houses at Kew*, and Professor Holttum and John Woodhams conducted the party round the Houses. Later we went to see the Fern Propagating House and John gave a talk on propagation from spores which contained much valuable information for those of us interested in growing our own varieties and increasing our collections in this way.

DAY MEETINGS

Savill Garden, Windsor — 14 July. We had an attendance of 12 at this meeting led by Jack Healey. There were many interesting plants to see in the Garden and plenty of colour. Ferns grow in many places, chiefly near the ponds of which there are many, and we particularly noticed how abundant the Royal Fern was. One large grass slope was covered with young self-sown sporelings. Later in the day we visited the Valley Gardens near Virginia Water. Very few ferns were seen here but the large collection of pines provided plenty of interest for most of us.

Essex/Suffolk — 12 August. Once again we enjoyed a day in North Essex under the leadership of Vivien Green who had prepared her usual interesting itinerary for the seven members present. We visited Wormingford Churchyard to see the vigorous colony of *Asplenium scolopendrium* among the gravestones and then continued over the Suffolk border to Arger Fen, on high ground and very overgrown. Not many ferns grow here but we did see a large colony of *Equisetum telmateia.* In the afternoon we travelled south again to the Nature Reserve at Fingringhoe, and as well as seeing the *Lycopodium clavatum* which grows there we were able to add a new fern to the Reserve records — *Osmunda regalis.* We finished with a short visit to Tiptree Heath but the young *O. regalis* seen here last year have been destroyed in a heath fire, and other ferns seen have been lost under the strong growth of the vegetation.

WEEKEND MEETINGS

The New Forest – 1/3 June. It is several years since we last hunted in the New Forest and the Secretary was the only one of the 12 members present who attended the previous meeting. The long prevailing dry conditions enabled us to penetrate to places which in the ordinary way would have been much too boggy, particularly Dibden Bottom, wet moorland and alder woods which were explored with the utmost difficulty by making long detours round treacherous quagmires, but we were rewarded with the discovery of a good colony of *O. regalis* and abundant *Thelypteris palustris* growing luxuriantly in a habitat very much to its liking. Other places visited were Millyford Bridge, Boldre, Crockford Bridge, Holmsley and Hatchett Pond. A total of 19 ferns and 5 allies was seen, which included in addition to those already mentioned, *Dryopteris carthusiana, Ophioglossum vulgatum, Oreopteris limbosperma, Pilularia globulifera* and *Lycopodium inundatum.*

Yorkshire – 15/17 June. A good attendance of 12 members and friends gathered for this meeting centred at Kettlewell, but we were sorry to be without our leaders, James and Margaret Merryweather, as James had only a week earlier undergone an operation for appendicitis. On Saturday the steep woods on the west side of the River Wharfe at Starbotton were explored and found to be very full of ferns. There were large colonies of *Phegopteris connectilis,* quite a lot of *Polystichum aculeatum,* and abundant *Dryopteris filix-mas,* but *D. pseudomas* was very scarce. On the limestone scars above the wood, aspleniums and *Cystopteris fragilis* were common. Higher up the valley at Crook Gill, a very ferny steep ravine with a series of waterfalls, we enjoyed a good scramble but did not find any species we had not already seen earlier. Of particular interest was a vigorous colony of moss draping a perpendicular cliff and being fossilised as it grew by the limey water seeping through it; the green growing points kept just ahead of the build-up of lime on the stems and lumps collected have a light open coral appearance.

We were very pleased to welcome Anne Sleep who joined us on the Sunday. The Blue Scar above Arncliffe was visited, following up an old record for *P. lonchitis.* We did not find it but some *P. aculeatum* in crevices, dwarfed and looking very much like the rare species, was seen and may have been responsible for the report of its appearance here. A magnificent crested *A. viride* was found but well tucked away in a very narrow crevice in the limestone which made it impossible to remove. It was too early to collect spores and this must be done sometime during a visit later in the season. An excellent *A. scolopendrium* 'Crispum' was collected near the same place and this may prove to be as good as any in cultivation. Limestone ferns were abundant in the grikes, including *Gymnocarpium robertianum* and *A. viride.* Again a quick visit to our popular railway cutting near Ribbleshead ended the meeting, and two new additions, *D. pseudomas* and *Equisetum arvense,* increase to 18 the number of species seen here.

Borrowdale – 29 June/1 July. Ten members gathered in Borrowdale and had a very enjoyable weekend with our leader, Fred Jackson, who knows the area so well. On Saturday we climbed up a ravine leading to Watendlath Tarn and then swung south beneath Yew Crag and down to Stonethwaite. We recorded 23 species, including good colonies of *G. dryopteris* and *Phegopteris connectilis* and some *P. aculeatum. Hymenophyllum wilsonii* was common and one single plant of *A. scolopendrium* was seen. On Sunday Launchy Gill and Dob Gill on the west banks of Thirlmere were explored. The former is a very narrow steep ravine but fortunately the volume of water was low and we clambered up it for the best part of a mile, finding it full of ferns. *A. viride, Cystopteris fragilis, G. dryopteris, P. connectilis* and *H. wilsonii* were all common and we also noted a few plants of *Cryptogramma crispa* in this rather unusual habitat for the species. The ferns of Dob Gill were very similar but not so abundant, and high up in Harrop Tarn we found some colonies of the horsetail *Equisetum fluviatile.*

Wye Valley — 17/19 August. Our leaders were the Merryweathers, and James was now fully recovered from his appendicitis operation and led our party of 11 members on a strenuous scramble along the steep wooded slopes of the river valley to the south from our centre at Symonds Yat, a most beautiful spot. Both banks of the river were explored and one of our chief quests was for *Polypodium australe* which was noted frequently. We were also shown two plants of the hybrid *Polystichum X bicknellii.* On Sunday we worked to the north on both sides of the river, finding much the same ferns as on the previous day. The dominant fern everywhere was *A. scolopendrium* but we looked in vain for good varieties, finding only the occasional nondescript crested one. A very fine colony of *A. ceterach* was admired on a farm wall, and in a damp wood some *D. carthusiana* was seen. A visit to Philip Coke's garden at Stinchcombe rounded off the weekend and we congratulated him on his many successes from spore sowings — one is an athyrium which ranks in quality with the well-known Druery varieties.

Porlock, Somerset — 28/30 September. This meeting centred at the Ship Inn, Porlock Weir, was the best attended of the year with 17 members and friends present. Joan Loraine who lives locally made excellent arrangements and on Saturday we first followed up a record for *Asplenium billotii* near Allerford but found only the more common *A. adiantum-nigrum.* We then moved on to Ley Hill to follow up an old record for *A. septentrionale,* but the habitat, quite accurately described, could not be found and it is thought the wall concerned must have been pulled down. Another record, this time for *Phegopteris connectilis* near the head-waters of the River Exe was our next objective, and we found it in abundance in two places. We were also successful in our quest for *Cryptogramma crispa,* exceedingly rare in the West Country, and found six plants. The only other record for this corner of the country is a single plant growing on Dartmoor. On Sunday we explored Yearnor Wood, sloping steeply down to the sea to the west of Porlock. It was a hurried hunt and a leisurely search for varieties in this very ferny place would probably be successful. *Dryopteris aemula* was growing strongly in one part of the wood and below, on the cliffs, *A. marinum* was seen. Sunday afternoon was devoted to a visit to Joan Loraine's garden after she and her mother had provided us with a very enjoyable buffet lunch. A near-by garden, rich in fern varieties, was visited later in the day before the meeting ended.

WEEK MEETINGS

Killin, Perthshire – 21/28 July. We had a very poor attendance of only six members, Ivor Ambrose, Joan Clark, Jimmy Dyce, Michael Gibby, and Chris and Mary Potts, at this meeting centred on the Morenish Lodge Hotel on the north bank of Loch Tay, a few miles from Killin. We were blessed with excellent weather, too hot for energetic work during the latter half of the week.

We began on Sunday with an appetiser – a visit to our known colony of *Woodsia alpina* on cliffs near Lochan na Lairige. To some of the party this fern was a new one and they were delighted to see it flourishing on the bluff of rock which has become so familiar over the years. I had a report last year that the colony had been sadly reduced in numbers because of the very dry summer but we noted that it appeared to be up to full strength again this year – and it would seem that only the fronds and not the rootstocks had suffered. It is remarkable that only on one small section of the cliff does the fern grow and we searched for it further afield, in vain, as we have done on previous visits. Another area about a mile distant, not before hunted, but a likely-looking habitat for it, occupied our attention during the afternoon and we were very pleased to find one plant at the bottom of the cliff and it seems certain that there must be more of it higher up out of reach. In the Lochan na Lairige terrain we recorded 13 ferns and 8 allies. *Polystichum lonchitis* was abundant, large plants, little plants and sporelings, but only one plant of *P. aculeatum* was noted, *Asplenium viride* and *Cystopteris fragilis* were common, *Phegopteris connectilis* and *Polypodium interjectum* grew among the rocks below the cliffs, along with *Equisetum sylvaticum* and even *E. pratense.* On the slopes were *Lycopodium alpinum, L. clavatum* and *L. selago, Oreopteris limbosperma* and *Dryopteris* species. In *Woodsia* habitats a common trap for the unwary is very small-growing *C. fragilis* growing on similar rock. Superficially these plants are very like the rare fern and have to be looked at closely but when the "real thing" is seen and studied its morphology is so distinct that no further difficulty is experienced.

Sunday's weather was cool with some light showers, and as the forecast for Monday was not too good we postponed our climb up Ben Lawers and instead travelled north to the Kinloch Rannoch district, and incidentally had a warm sunny day, to visit one of Scotland's few limestone pavements where grows *Gymnocarpium robertianum* in one of the only two recorded Scottish habitats. It is only a few years ago since the fern was discovered here by A W Punter, one of our members living near Ipswich and his record was at first treated rather sceptically in certain quarters. In 1970 I visited the locality and after much searching found the colony which is a very small one, so small indeed that again this year a long search was necessary to locate it. In two very small crevices it grows strongly and yet does not spread to other crevices in the pavement, neither by stolon nor spore, one of those distribution mysteries which always intrigue us. In this area, in the shadow of Schiehallion's conical peak, we recorded 14 ferns and 8 allies. The common ferns on the limestone were *A. trichomanes, A. viride* and *C. fragilis,* but that familiar fern in similar English habitats, *A. scolopendrium,* was absent. On sheltered rocky banks higher up the hillside we noted *G. dryopteris, P. connectilis, O. limbosperma* and some *P. interjectum,* as well as the three Male Ferns, *D. abbreviata, D. filix-mas* and *D. pseudomas,* along with *Blechnum spicant.* Four Clubmosses were found, *L. alpinum, L. annotinum, L. clavatum* and *L. selago.* I was particularly pleased when, on lifting up a large clump of heather in search of the Lesser Twayblade orchid which loves to hide itself away in such habitats, I uncovered a plant of *L. annotinum*, my first introduction to it in the wild in this country. It is found only rarely outside the Scottish Highlands. *E. sylvaticum* grew strongly among the heather on a wet part of the hillside and in a nearby lochan we noted *E. fluviatile.* Exploring along the south banks of Loch Rannoch later in the day we admired a magnificent colony of very strong and tall-growing *D. pseudomas.* An enjoyable scramble up the steep narrow corrie down which the Allt Camghouran, fortunately for us low in water like most of the streams, descends in a series of cascades, provided a good finish for our day. Here great sheets of the Oak and Beech Ferns draped the rock walls, but we searched in vain for *Hymenophyllum wilsonii* in what seemed a very suitable habitat for this small fern.

Next morning the low ground over Loch Tay was enveloped in thick mist which gradually lifted as we sat at breakfast looking out over the water. This was obviously the forerunner to a fine day so our plans were quickly made to climb Ben Lawers, not to achieve the summit but to penetrate up to the far end of the Lochan nan Cat corrie in search of the rare ferns which have their homes on the cliffs. All the south side of the mountain belongs to the National Trust for Scotland, and a main aim, in conjunction with the Nature Conservancy, is to ensure the preservation of the alpine flora, one of the richest in Britain with many rare plants including the ferns *Athyrium distentifolium, C. montana, P. lonchitis* and *W. alpina*, all of which we hoped to see. On previous visits lack of time had prevented me from reaching the arc of cliffs at the far end of the Lochan and the only one I had found was *P. lonchitis.*

We made a good start from Lawers and climbed by way of the Lawers Burn, with no hunting en route to give us the maximum amount of time on the cliffs. On the way up we were joined by Peter Jepson from Darwen who was botanising with his camera and knows his ferns well. He it was who found the first plant of *W. alpina* growing in a most unlikely spot on a large boulder resting on the slopes below the cliffs. In all we found 12 plants, scattered singly along about half a mile of rock face, one of them an excellent specimen about 4 inches through and 4 inches high poised on the rock about 12 feet above us. By standing on the shoulders of our tall member, Chris Potts, photographic enthusiasts were able to get close-up shots of the plant. On rock screes further round *D. assimilis* was a dominant plant, looking very typical, and with it was the occasional *A. distentifolium*, clearly identifiable by its large round sori. Looking across the screes to the next line of cliff, a vigorous colony of largish ferns looking like athyriums was noted in a deep crevice about 20 feet up and they also proved to be the Alpine Lady Fern. While investigating them a cry from Mary Potts announced the discovery of the fern we most of all wanted to find, *C. montana*, growing in a steep wet gully, in a few scattered drifts, some on the rock and some, quite dwarf, creeping through boggy turf. This find in the late afternoon crowned a successful day and we plodded homewards feeling well satisfied with ourselves. We recorded on the mountain 18 ferns and 5 allies. The other rare fern, *P. lonchitis*, was of course far from rare in this, one of its chief centres in Britain. Common ferns were *A. viride* and *C. fragilis* but only a few plants of *A. trichomanes* were seen. *G. dryopteris* was at home rambling in the screes, along with a few plants of *D. abbreviata*, and on the slopes there was plenty of *O. limbosperma, D. austriaca* and *D. pseudomas*, also the allies *L. clavatum, L. selago* and *Selaginella selaginoides.* On a rock ledge a solitary *Botrychium lunaria* was growing, and the other ferns noted were *B. spicant, D. filix-mas, P. interjectum* and, lower down than its mountain relative, *A. filix-femina.* In the Lochan *E. fluviatile* flourished and *E. palustre* was happy in the wet places.

On Wednesday the weather became very warm and sunny. We are so accustomed to cold rainy conditions on Society outings that we should not complain when we get the reverse, but the fact remains that from Wednesday onwards the weather was *too* hot for comfortable and energetic hunting and we slackened off accordingly, particularly during the afternoons! After Ben Lawers an easier day was demanded, so we travelled up Glen Lochay and stopped at the island near the Falls of Lochay. This is a fascinating spot, only surrounded by water when the river is high, and its miniature wooded glens, hills and cliffs are lush with ferns. The large-growing ones spread luxuriantly among the trees, and on the rocks there are *A. trichomanes, C. fragilis* and *P. interjectum.* The shady wet banks and rocks are covered with large drifts of *G. dryopteris* and *P. connectilis,* and also *H. Wilsonii.* Further up the Glen we stopped at Duncraik and crossed over the river to clamber up the Corrycharmaig Burn which runs down a steep wooded corrie, in places very narrow with perpendicular rocky sides in which ferns abounded particularly *G. dryopteris, P. connectilis, A. viride,* huge plants of *P. aculeatum,* and some *C. fragilis,* but only one small colony of *H. wilsonii.* We found 16 ferns and 2 allies in the corrie and open ground above it. The larger ferns were common on the hillside where also a single plant of *B. lunaria* was seen; *B. spicant* seemed to be notably scarce. At the head of Loch Tay on the return journey we looked around the old pier and the overgrown banks of the Loch but found only 5 species, the dominant one being *D. filix-mas* which grew strongly everywhere. We were interested to see *E. fluviatile* extending over the water with normal strong upright bare stems, while in boggy areas nearby it was profuse with very tall, strong and fully branched stems.

From our hotel we could look across Loch Tay to wooded hillsides rising from the water's edge and an exploration of this district promised an interesting day for Thursday. At our first stop almost opposite the hotel at Firbush Point the roadside and the slopes down to the Loch were full of the large woodland ferns, *A. filix-femina*, several *Dryopteris* species, including *D. carthusiana* seen for the first time, *O. limbosperma, B. spicant,* also *G. dryopteris* and *P. connectilis* widespread, and the horsetail *E. sylvaticum.* Further along the Lochside road we climbed up the Allt Breaclaich, a very vigorous stream rushing down a steep narrow corrie. Again the conditions seemed right for *H. wilsonii* but we could not find it. The ferns recorded were very much the same as in similar habitats hunted, with the Beech and Oak ferns in big drifts wherever they could find foot-hold on the rock walls, some colonies of very large-growing *P. aculeatum, A. viride* and *C. fragilis.* On the more open slopes *A. filix-femina* and *Dryopteris* species were abundant, again including *D. carthusiana.* We moved on to Acharn where the large Acharn Burn comes down from the hills with a high impressive waterfall about a mile up the Glen. Below the falls the very deep ravine is inaccessible but the glimpses we had down into it showed it to be full of ferns. Above the falls the corrie opened out but the ferns dwindled in numbers and so did our enthusiasm after our climb up the

Glen in bright hot sunshine! In a damp wood on the hillside above, once more *D. carthusiana* was found along with several colonies of small-growing ferns which were neither *D. austriaca, D. carthusiana,* nor the hybrid *D. X deweveri,* but obviously in the complex.

We travelled to the top of Loch Tay and decided to return home via Glen Lyon and over the mountain road by Lochan na Lairige. A record for the Parsley Fern, *Cryptogramma crispa,* in the *Atlas of the British Flora* for the National Grid 10km square in which we were,had been interesting us for a day or two, and when we saw the screes on the north side of Glen Lyon we were sure this must be where the fern grew. Time was short but we scrambled up to one scree not very far from the road and within minutes stumbled on one clump of it. A hurried intensive search revealed no more plants and we promised to return on the morrow to renew the hunt, for we were sure we could not have walked, by sheer good fortune, on to the one and only plant in the area.

On Friday morning we set off for Glen Lyon over the mountain road, and on the way we called at the Information Centre, high on the hillside, which has been established by the National Trust for Scotland and the Nature Conservancy for the supply of information to naturalists and climbers on the fauna, flora and geology of Ben Lawers. Anyone visiting the area is recommended to visit the Centre which is planned with imagination to present a wide range of extremely useful information, with exhibits, maps, plans, specimens and pictures, as well as a book counter selling books and booklets relating to the mountain and its varied interests, and to natural history generally. Flower and fern lovers should buy the booklet entitled *Ben Lawers and its Alpine Flowers.*

We devoted the morning to a resumption of the hunt on the extensive screes at the top of Ben Lyon near the Bridge of Balgie, and higher up the hillside *C. crispa* was found to be fairly frequent in distribution. We noted 13 ferns on the slopes, including very abundant *G. dryopteris* rambling happily among the stones. Lower down, *D. pseudomas*, looking very like *D. abbreviata*, was common on the screes, but higher up this suddenly ceased and the real *D. abbreviata* took its place equally abundant, and in the rock crevices of a high corrie growing to a large size. Another interesting fern noted was *A. filix-femina* — searching for *A. distentifolium* we noted a tendency in many plants to bear sori which seemed to be halfway between those of the two species. They were larger than on *A. filix-femina* and appeared to be almost round but had very pronounced indusia. Stops were made at a few places on our way down the Glen and at Chesthill we crossed by a footbridge to the south side of the river and climbed for a little way up the Allt Da-ghob. Ferns were not in abundance except *P. connectilis* growing profusely on the banks of the stream and in the heather. There was some *A. trichomanes, A. viride* and *C. fragilis* on the rocks and a few plants of *P. aculeatum* in the woods.

So ended another Excursion, poor in members attending but rich in fern finds; we listed 27 ferns and 10 allies, not a bad record collection which included some of our rarest species, and sent us home very satisfied with our week in Perthshire.

North Wales — 8/15 September. It is some years ago — in 1961 — since we were last in Snowdonia for a week's meeting. This time we were centred in Beddgelert at the Bryn Eglwys Private Hotel, with Moel Hebog dominating our view. Again our numbers were disappointingly small, although better than in Perthshire; 11 members attended — Marjorie Castellan, Jimmy Dyce, Alf and Ray Hoare, John Jones, Margaret Kingston, Joan Loraine, James and Margaret Merryweather, and Martin and Hazel Rickard. The weather was dry and sunny all the time and with the exception of Thursday which was bitterly cold on the hills, it was really too hot for climbing — and one does plenty of that in Snowdonia !

The obvious choice for our first day was Moel Hebog standing invitingly on our doorstep, and the habitat of many rare plants including ferns. Even that rarest of ferns, *Trichomanes speciosum*, is reported to be tucked away in a watery cave somewhere in its vicinity, and on its rocks grow the woodsias. We obtained permission from the Forestry Commission to take cars up the forest roads to the tree-line well up on the mountain side and this saved us a long weary walk and enabled us to start fresh on the high slopes among the rock screes and up to the line of the cliffs. We concentrated our searching on the Moel-yr-Ogof shoulder of the mountain and quickly logged up 18 fern species and 4 allies. I remembered from 1961 a narrow rock chimney at the top of which 9 plants of *Woodsia ilvensis* grew, and after some searching we found it again. A climb up the rock for about 20 feet took us to the top of the crevice and there the woodsias still flourished and had increased in numbers to 11. Together with those from a colony known to Martin Rickard which proved to be close by, we found in all about 16 plants. There was the usual trap of small-growing *Cystopteris fragilis* frequenting similar habitats and trying to mislead us by looking very like the rare fern. An unexpected find was *Dryopteris aemula,* two small plants growing in rock crevices on the hillside. *Asplenium viride* was frequent on the cliffs but the more common spleenworts, *A. ruta-muraria* and *A. trichomanes* were very scarce. We noted a few colonies of *Phegopteris connectilis* but the fronds were small and brown due to the dry weather conditions; *Polystichum aculeatum* was also seen in small numbers. The common fern seemed to be *Blechnum spicant* which was very abundant all over the slopes and a notable omission was *Pteridium aquilinum* which is being killed off by spraying. Other ferns seen included *Hymenophyllum wilsonii* in patches on the rocks, *Cryptogramma crispa* on the stony hillside, along with *Athyrium filix-femina, Dryopteris* species, *Polypodium vulgare* and *Oreopteris limbosperma.* The clubmosses, *Lycopodium alpinum, L. clavatum* and *L. selago* were all there and in the damp places *Selaginella selaginoides.* Later in the day on the west side of the mountain the ferns were very similar but we added *A. adiantum-nigrum* to our list. A magnificent colony of *P. aculeatum* was found in the entrance to an old mine and *Equisetum fluviatile* in a pool below.

After our first strenuous day, an easier terrain was chosen for Monday which started dull and cool but soon warmed up again. We decided to explore the interesting looking wooded valley called Ceunant Llennyrch on the south side of the Vale of Ffestiniog, and en route stopped for a short time to scramble on the rocks of Garregelldrem and see the *A. billotii* which we had recorded in 1961 — it was still there, growing strongly. In the morning we descended the steep side of the ravine valley to the Rhaeadr Du waterfall tucked deeply away in wild surroundings. The rocks were rich in ferns and

14 species were found, including a fine colony of *D. aemula* flourishing on a wet sloping bank above the waters. *P. aculeatum* was also there with *P. connectilis* and patches of *H. wilsonii.* Lower down the ravine before it became impassable several plants of *Osmunda regalis* were seen. After lunch we penetrated the ravine from the lower end until it again became impossible to proceed further in spite of valiant efforts by Joan Loraine who seemed convinced that the Killarney Fern would be found round the corner – certainly it looked like a suitable place for it. Needless to add, she was given plenty of shouted encouragement from certain lazy members of the party, sitting comfortably on a large rock in the middle of the torrent ! We added a few interesting species to the morning's list, notably *A. scolopendrium,* the only find during the week of this fern which is not common in the area, *H. tunbrigense* as well as *H. wilsonii,* one more small plant of *O. regalis*, and the hybrid *D. X tavelii.* Before returning home we travelled further down towards the coast to a small stream near the roadside where at one time *T. speciosum* grew in a small cave behind a curtain of water. Armed with a torch Martin Rickard struggled in through the water but all he got was a good soaking ! Some of the party today visited Black Rock on the coast near Criccieth and found *A. billotii* and *A. marinum* on the rocks. One good variety find, the only one of the week, was made today by Martin Rickard at the waterfall – *Blechnum spicant* 'Serratum' with deeply incised pinnae. It is a fairly small specimen with no fertile fronds and when fully grown should be a very good one. Very few blechnum finds of quality have ever been made and this promises to be a very welcome addition to them.

For most of us Tuesday was a lazy day when several members wanted to take advantage of the fact that we were so near Bodnant, the residence of Lord Aberconway, President of the Royal Horticultural Society, to make a visit to the famous gardens there. In the morning, en route, we stopped at Capel Curig for a time to explore Gwydyr Forest sloping steeply to the south bank of the river. Ferns were not very plentiful but on the rocky ground higher up we found some interesting ones, including *A. viride* in a habitat which seemed quite alien for it, and *P. vulgare* growing luxuriantly on some of the trees. On damp ground the common woodland ferns flourished, along with some *P. connectilis,* and on the rocks *H. wilsonii* was common. On the return journey from Bodnant which had very few ferns to offer us, we visited the well-known *A. septentrionale* colony on the roadside near Llanrwst and found it in good condition in spite of the dry summer, although plants near the top of the wall were looking very dry.

Martin Rickard and James Merryweather could not tear themselves away from the mountains and spent the day on the high slopes of the Pass of Llanberis, intent as usual on a search for woodsias which they hoped to find on the northern shoulder of Snowdon in Cwm Glas Bach. They were unlucky but did find *P. lonchitis* as well as 17 other fern species and the 3 common lycopodiums. Both *Gymnocarpium dryopteris*, a fern we did not see often during the week, and *P. connectilis* were there and on the rocks *A. viride, C. fragilis* and *H. wilsonii.* A hunt on the opposite slopes on the north side of the Pass at Craig Du was not so productive, but *A. septentrionale* was there and some *A. adiantum-nigrum.*

An interesting valley lies on the west side of Moel Hebog, the Pennant valley, drained by the Afon Dwyfor and on Wednesday we travelled there to explore the headwaters of the river. On the way at Penmorfa a high wall was noted, well covered with large-growing *A. ceterach,* a fern which it is always well-worth stopping to admire, and this colony was exceptionally good. Several streams converge near the top of the valley, some with deep ravine channels and in them we found 16 ferns, including both the hymenophyllums near each other, several of the small rock species, and even *A. ceterach* on an old stone wall.

Last year during the weekend meeting in Snowdonia we paid a visit to the Black Ladders valley near Bethesda. The name is given to the tiers of rock in the cirque at the far end below the mountains Carnedd Dafydd and Craig Llugwy, and are only reached after a long but easy climb of about 3 miles. It rained and was bitterly cold during this first visit so we did not do particularly well with our hunting, and as the cliffs have the reputation of being good for plants we decided to go again on Thursday under better weather conditions. It remained dry this time but a strong cold wind was blowing making us glad to don sweaters and anoraks. We again found the area very disappointing fernwise, and the noticeably dominant one was *C. crispa* which was everywhere in great abundance growing to a large size. Only 12 ferns were seen – not as many as last year ! On the cliffs were good colonies of *P. connectilis* and *D. abbreviata,* some *G. dryopteris, C. fragilis, P. vulgare* and *H. wilsonii,* and in the rock screes there was *D. assimilis.* We expected to see *A. viride* which was noted last year and hoped to find *P. lonchitis* but were unlucky with both. On the slopes *L. selago* was abundant, also the small *S. selaginoides* and some patches of *L. alpinum* and *L. clavatum; E. fluviatile* was seen in water at one place.

On the Friday it was much warmer again and we began the day in the Cwm y Llan up the side of Snowdon where the Watkin Path to the summit commences. Woods and streams seemed to offer us an interesting day but it did not prove so, even though we recorded 18 ferns. Very few were abundant except some of the large-growing ones in the woods and along the banks of the stream. Both the hymenophyllums were found but were not common and some *P. connectilis* was growing in damp shady places. On the open ground higher up the common spleenworts and a little *A. ceterach* were seen and some *D. assimilis.* In the afternoon a visit to the Pass of Aberglaslyn produced little of interest and we went on to Croesor where in 1961 we recorded *A. septentrionale.* This visit ended the Excursion on a high note, for the Afon Maesgwm cascades down the hillside in a very deep ravine in a series of large waterfalls and ferns were in great abundance. During a very short stay we recorded 14 species and we regretted not visiting the place earlier so that more time could have been devoted to it. *P. connectilis* was common along with *H. wilsonii,* and the cliffs above supported a large colony of strong-growing *A. septentrionale.* Close by in an old mine tip *A. adiantum-nigrum, A trichomanes* and *A. ceterach* were noted in the rubble and wall crevices.

The number of ferns seen compares with the 1961 list – 34 species on each occasion but there were some omissions and additions. This time we did not see *A. X alternifolium, W. alpina* or *Isoetes echinospora,* but *O. regalis, D. X tavelii* and *D. assimilis* were additions. The last-named one, of course, had not been recognised as a species at the time of our last visit. Fern allies totalled 7, so we logged 41 species in all, a very good bag for a week's hunting. As in 1961 fern varieties were practically non-existent, and I consider we were very lucky with our one excellent find, *Blechnum spicant* 'Serratum', which promises to be a good one in cultivation when it grows larger.

RAISING FERN VARIETIES FROM SPORES

Reginald Kaye

It may be of some interest to gardening members to hear of some experiences I have had when raising variations of hardy ferns from spores. There is often a chance of improved varieties cropping up, as well as a good many disappointed irregular forms best destroyed. Those species which have been shown to be apogamous have occasionally produced variations which also are, presumably, apogamous. *Dryopteris pseudomas* 'Cristata The King', for instance, comes 100 per cent true from spores. *Asplenium scolopendrium* 'Laceratum Kaye' which occurred in the nursery as a chance sport, has produced many hundreds of youngsters from sowings over the years and I have yet to see a departure from the original character of the sport. On the other hand, most other varieties of the Hartstongue seldom breed quite true to the original though often very much improved variations crop up. In the case of *A.s.* 'Sagittatum Cristatum' some truly marvellous seedlings came in sowings from a relatively simple form.

Many varieties of *Polystichum setiferum* breed quite true from spores. *P.s.* 'Congestum' and its crested form both come 100 per cent true, and *P.s.* 'Divisilobum' transfers the divisilobe character perfectly with minor variations. Occasionally an especially handsome form turns up and very occasionally a plumose divisilobe is produced. *P.s.* 'Conspicuilobum' produces about 70 per cent true progeny, the balance being quite distinct forms with very broad ovate pinnules. *Adiantum pedatum* in most forms breeds true to variety unless of course these forms are species in their own right, but one form I have, reputed to be from Asia, produces 50 per cent normals and 50 per cent of a new break I have called 'Laciniatum' which describes it perfectly. Repeated sowings from this form have behaved in the same way. I have not come across spores on the laciniate plants but I have not searched them thoroughly — I have had no spores shed from a bunch of fronds taken last year. Being somewhat stiff in the joints these days I no longer get on my knees to examine the fronds in situ.

I find the behaviour of *Athyrium filix-femina* varieties quite fascinating, though relatively few seedlings are an advance on the originals, and a good many rogues turn up. The lunulate habit of *A.f.* 'Frizelliae' seems to be a dominant factor, for the youngsters all have this character although occasionally diversified with cresting. The cruciate habit also appears to be a dominant character appearing in all youngsters to some degree. The classical cruciate, *A.f.* 'Victoriae', always produces progeny of the parental habit though very seldom in such perfection as the original. Recently a sowing of *A.f.* 'Mediodeficiens Polydactylum' behaved rather differently to previous sowings. Previously I had used my own plants and got a very high proportion very close to the original, but last year I had spores from Fred Jackson's plant and the results were about half 'Mediodeficiens' and half 'Laciniatum' which I had not grown before. Some of these seedlings were very interesting, with long slender fronds, the upper parts hardly an inch wide tapering to a point, and the pinnae very reduced and laciniate. Others terminated their fronds, otherwise similar, with a branching crest quite distinct and rather pretty.

Over the years I have had many fascinating sports from the lady fern, some quite beautiful, some extremely interesting. It always seems to me that there is a tremendous field here for research on the reasons for these variations. It seems obvious to me that there must be rearrangement of the constitution of the chromosomes to account for these departures from the normal. My interest is from the gardeners' point of view, and it gives me a new interest in life looking forward to the next strange variation to turn up.

INDOOR FERN NOTES

H J Bruty

CYATHEAS. These are tree-ferns and form trunks after they are a few years old. They differ greatly in height from the tall *C. medullaris* up to 40 feet to the much dwarfer ones about 3 feet. The strength of the trunks also differs and a few species which include *C. hookeri* and *C. sinuata* are so weak that the plants fall over and the trunks root afresh into the soil. This happens a number of times during their lives. In cultivation, covering the trunks with sphagnum moss held in place with netting helps, as the roots penetrate into the moss and stiffen the trunk.

Cyatheas do better if planted into a bed of soil, provided the house is 15 feet or more in height. When they reach the glass they can be lowered by cutting the trunks at ground level and replanting. But first a good layer of sphagnum moss must be bound round the base of the trunk a year before cutting to allow new roots to develop. The old root is excavated and the tree lowered into the hole with the new root system below ground level. After planting, more sphagnum is bound round the trunk and kept moist to encourage more new roots and help the tree to survive until it has rooted again into the soil. The best time for the operation is the middle of February providing the weather is suitable. These ferns must not be allowed to get dry at any time, for if this happens the fronds will wither and have to be cut off.

Cyatheas have to be raised from spores but there are one or two species which produce young plants on their trunks, although they are difficult to root unless kept in a closed frame for quite a long period. Most species produce spores all the year round and they should be gathered a week before sowing and stored in a dry room. The best time to sow is in February, in a temperature of $65^{o}-70^{o}$F, which will allow time for the young sporophytes to develop and be pricked out singly before the next winter comes.

EXTRACT FROM CORRESPONDENCE

From A W Punter – "In 1957 I planted *Polystichum lonchitis* on the bank of my drive which is chalky boulder clay. It has flourished and now produces about 50 or more fronds each year." (Mr Punter lives near Ipswich and it is interesting to hear how successful he has been with this fern which can be so difficult away from its native haunts – it resolutely refuses to grow with me in Essex ! – ED.)

Referring to Reginald Kaye's article "A Happy Experiment" in Newsletter No 10, Mr Punter continues – "In 1965 I planted *Asplenium ceterach* in the same bank but after two years it looked to be on its last legs, so I tried to save it by planting at the foot of the house wall where it is met by crazy paving. Since then it has never looked back and has now a dozen fronds. In the same position *A. ruta-muraria, A. adiantum-nigrum, A. viride,* and *Cystopteris fragilis* have all been successful. The wall faces south-west, so gets quite a lot of sun and I am surprised that they have done so well, especially *A. viride.* There was not much room to make a hole for planting so I just did what I could and wedged them in with pieces of fairly soft chalk."

BRITISH FERN VARIETIES – The Polypodies

J W Dyce

Over the past two years I have received much good advice on how I *ought* to tackle the polypodies ! It so happens that since the olden days when most of the well-known varieties were found and named, it has been discovered that there are three separate polypody species in this country, *Polypodium australe, P. interjectum* and *P. vulgare,* all with different chromosome counts, diploid, hexaploid and tetraploid respectively. *P. interjectum* originated as a sterile triploid hybrid between the other two, but doubling of the chromosomes occurred making it into a fertile hexaploid. This is all very interesting to the botanist, but to the grower the fern continues to be *P. vulgare* and for the purpose of this article I am going to ignore its division into three species and consider all the varieties under the old aggregate name. One fact must be mentioned, however – *P. australe* does not produce its new fronds till the late summer/autumn, *P. interjectum* in the summer, and *P. vulgare* sensu stricto in the late spring/summer. It is important to remember this when growing the varieties, particularly 'Cambricum'.

Polypodium like several other genera, has been generous in the giving of varieties and Lowe lists 75, but a large number of them would not be considered worthy of a name these days, and others are synonyms applied by different finders to the same form. Nevertheless, a goodly number of choice ones remain and a good collection of these is something well-worth acquiring. The fern has a thick creeping rhizome which grows on or just below the surface, and in nature we see it on rocks, trees and along the tops of old walls and banks, all places which are well-drained, but its luxuriance depends on how rich the underlying soil is. In cultivation it likes a friable leaf-mould compost and is happy along the top of terraced walls or in pans; a cold frame on a bed of old leaf-mould is a good place for a collection of the better ones – this gives protection from the elements, but plenty of light and air must be given. All of them are evergreen.

Lowe's division into four groups cannot be bettered and is adopted here. The first is PLUMOSUM which as its name implies, includes all the feathery varieties which are by far superior to any of the others. *P.v.* 'Cambricum' is the most common of these and is widely grown. The fronds are almost as wide as they are long and the normally plain pinnae are deeply cut into long lobes and so widened that they overlap considerably. It belongs to *australe* so do not be alarmed and think the plant is dying when the over-wintering fronds die down during the summer, but continue to see that it is well looked after and the new fronds will grow strongly in due course. The variety is still known in the wild in one or two places in Wales, jealously guarded, but there is absolutely no need to gather it from its wild haunts since there is so much of it in cultivation, and it grows and spreads well. Improvements on normal 'Cambricum' with more divided and overlapping segments are 'Cambricum Barrowii', 'Cambricum Hadwinii', 'Cambricum Oakeleyae', 'Cambricum Prestonii' and 'Cambricum Whilharris', and are real treasures but possibly difficult to come by although they can be found in most good collections. Unfortunately, there is some uncertainty these days about which is which, although 'Hadwinii' has a distinctive crisping which makes it easy to identify. Fortunately, their great beauty is not affected by this uncertainty.

All the foregoing varieties are completely sterile but a somewhat similar one which is fertile is 'Pulcherrimum' with strong-growing thicker-textured fronds and less acutely pointed segments; another very good one is 'Cornubiense' with pinnae divided on the same pattern, but a peculiarity of this variety is its tendency to produce the occasional completely normal *P. vulgare* frond or partly normal one. Looking at any plant one can usually find tucked away at least one or two normal fronds or pinnae; these can be very useful identification pointers and are seldom so conspicuous as to detract from its beauty – if they do, remove them ! 'Trichomanoides' is a much smaller variety tri-pinnately divided into very fine segments, but it proclaims its affinity to 'Cornubiense' by the same propensity to throw normal and partly normal fronds. Our member Jack Healey has bred a variety from this fern with the frond division going even a stage further to quadripinnate. It is an exquisite gem but slow to increase and has been named *P.v.* 'Trichomanoides Jean Taylor' after his wife. A few other varieties in the section are all much similar but difficult to obtain.

The second group is LACERUM, of a simpler structure with narrower and, on the whole, longer fronds, and deeply cut or lacerated pinnae. 'Omnilacerum' has all the pinnae divided on 'Cambricum' lines but the frond is narrower and the pinnae are much more open. Several plants have been named in the past but all are rather alike and the names have been lost with the exception of one called the 'Oxford Variety'. Also with many named forms at one time, 'Semilacerum' has the lower part of the fronds divided while the upper pinnae remain more or less normal. Like 'Cambricum' at least some of the group seem to belong to *australe,* for they have been observed to produce their new fronds in late summer.

We now come to the CRISTATUM group which includes a number of forms, some with only simple divided apices and/or pinnae, some with crested apices and/or pinnae, and others with heavy apical crests, all of which characters we can find "permed" along with congested and ramose ones. Variation in this group can be more commonly found in the wild than in any of the others, and many are grown under the names of 'Bifidum', 'Bifido-cristatum', 'Cristatum', 'Multifidum' and 'Ramosum'. The finest named varieties are 'Grandiceps Fox' and 'Grandiceps Forster' with fully crested pinnae and well-developed large cristate apices.

The fourth and last group is ANOMALUM which includes all other kinds of variation, none of them very exciting – 'Acutum', 'Attenuatum' and 'Longipinnatum', all with lengthened pointed pinnae, 'Dentatum' and 'Crenatum' with indented or serrated pinnae, 'Crispum' with twisted pinnae, 'Imbricatum' with overlapping pinnae, and 'Caudatum' with long narrowed apices. There are many other forms of minor variation, and most of them, particularly 'Dentatum' and 'Crenatum', are to be found frequently in the wild. They can be collected as mementoes of an outing, but valuable space should not be filled with them when so many other finer varieties are available for the purpose.

THE GREENHOUSE FERNS AT KEW

John R Woodhams

PREFACE by R E Holttum

> One hundred years ago John Smith (Curator, Royal Botanic Gardens, Kew, from 1841 to 1864) enumerated more than 900 species of ferns which he had seen in cultivation in Britain, the great majority of them under his own care at Kew. It is unlikely that all of them were in cultivation at any one time, as some are difficult to manage and would probably survive for a period only, but the record is an impressive one. After John Smith's retirement, and an abatement of the "Victorian Fern Craze", the number of species in cultivation at Kew declined, and the second world war resulted in more casualties. The revived interest in ferns in recent years, as a result of the interplay of new thought on classification with a whole range of new information on cytology, has had a stimulating effect on the introduction of living fern plants for study, so that now once more Kew has in cultivation a collection comparable to that which John Smith accumulated; that collection is now, as under John Smith, one of the most comprehensive to be found in any part of the world.

During recent years it has been the policy at Kew to examine the living collections with a more critical eye and to define their function more closely in relation to the work of the Royal Botanic Gardens as a whole. In general, a large collection such as the ferns, consisting of some 1300 taxa, can be said to have three main uses. Firstly, it provides an aesthetically pleasing display for the visiting public who visit Kew mainly for relaxation and enjoyment. Secondly, as a wide-ranging collection well backed by scientific data, it is of importance to botanists and others in research, and also for the purposes of conservation. Thirdly, being fully representative of the variation within each family and genus, it is of great interest and educational value for school pupils and university students. Within the Royal Botanic Gardens themselves the collection is used for practical instruction for both the diploma students and the permanent staff. These various functions provide adequate justification for the expense of maintaining the collection, which is considerable, taking into account labour, materials and heating costs.

At Kew, as many members of the Society will know, there are four Houses devoted solely to the cultivation of ferns and their allies. The main Tropical Display House contains many large specimens of a number of genera, among which are *Angiopteris, Cyathea, Cibotium, Diplazium* and *Tectaria.* Most of the plants are grown in containers to facilitate movement. To reduce the labour required in hand-watering, a capillary bench water system has been installed. This also provides a better growing atmosphere by creating greater humidity during the evening and night. One area of the House is set out as a rectangular bed, where many species are planted out, including *Blechnum gibbum, B. braziliense, Stenochlaena palustris, Cyathea cooperi, C. tenera* and *Pleocnemia tripinnata.*

In the Temperate Display House the lay-out is similar, with capillary benching and a planted bed area. A number of plants of the genus *Pteris* grow in this House. Among the species worth special mention are *P. catoptera*, a plant which has a good upright habit for display purposes but does not become obtrusive, *P. podophylla* which grows strongly but rarely produces fertile fronds, and *P. cretica* cultivar 'Childsii', interesting because it is sexually sterile, being reproduced entirely by vegetative means. Three species of the interesting genus *Marsilea, M. quadrifolia, M. hirsuta* and *M. drummondii,* grow in pots on the display bench. All produce sporocarps in cultivation, but it is not necessary to resort to raising them from spores since it is so easy to increase them by division.

Planted in the central landscaped area of the Temperate House are two large and attractive *Cibotiums* – *C. schiedei* and *C. regale.* A big plant of *Woodwardia radicans* grows at the base of the latter, producing its young plantlets at the apex of fronds. These readily establish themselves in the compost of the bed; one has to be ruthless in removing them or the clump will outgrow its welcome, to the detriment of weaker subjects. Growing very well at the end of the House is a group of species of *Platycerium,* including *P. bifurcatum, P. bifurcatum* var. 'Hillii', *P. stemaria, P. elephantotis* and *P. vassei.*

The Filmy Fern House, situated on the north-facing side of the Orangery, is a building with a high south back wall, a double layer of glass at the roof and a cavity front wall. Air circulates through box ventilation at the base of the front wall, up through the cavity area between the two layers of glass, and out of another set of ventilators at the top of the back wall. This House, constructed in 1964, has a centre 'house within a house', containing the filmy ferns, and a corridor area in which are growing *Dicksonia antarctica, Cyathea australis,* many *Polystichum* spp. and the beautiful *Dryopteris erythrosora* with brilliant red indusia covering the sori. The filmy fern compartment covers a large area and is only now beginning to mature. The front ground area is now well furnished with several *Leptopteris hymenophylloides,* and the tufa rock wall is very slowly becoming colonised by various species of *Hymenophyllum* and *Trichomanes. H. demissum* and *T. venosum* are growing well as is *T. speciosum* which we have obtained from Chelsea Physic Garden. Although liking plenty of atmospheric moisture the "filmies" seem to object to "wet feet". Indeed they begin to grow beautifully if they are able to scramble through the roots of other subjects. Ideal for providing this environmental niche are plants of *Dicksonia squarrosa* of which there are three good specimens in this compartment, with many smaller plants coming along as replacements for the parents when they become too large.

The glasshouse used for propagation and housing of the rarer specimens is constructed of aluminium and glazed with diffusing glass. It is divided into three temperature controlled sections; at 75°F, 65°F and 55°F. For the present the 65°F section is being used to some extent for testing new methods of culture and environmental control. The tropical (75°F) zone contains a number of glass cases in which are held many plants requiring a greater humidity. For these, once again, atmospheric moisture seems essential, but a freely draining compost is necessary. Genera grown thus include *Antrophyum, Humata,* the tropical "filmies", *Lindsaea, Bolbitis* and many others. We raise numerous plants from spores here, and these are accommodated in plastic trays on shelving under the capillary bench system, the pots being brought on to the benches for extra light when the young sporophytes appear. The various stages of patching off and potting are carried out in this House up to about a 5" pot, after which the plants are generally ready to be exhibited in the Display Houses. The temperate (55°F) section is similar, but has fewer subjects requiring the extra protection of cases. It is too cool for the most of our spore-raising activities; but by selecting a section of this House and allowing extra sunlight in, we have managed to increase greatly the growth of our *Cheilanthes* spp. These plants do not flourish in poor light conditions and are happier in a cool, airy position with a drier atmosphere.

The Kew collection of ferns contains plants obtained from many parts of the globe. The environmental requirements of the different species are very diverse, and this means that it is impossible to provide the ultimate in the needs of each and every one. Of necessity, they have to be grouped together under the conditions we hope will most satisfactorily match those from which they have been taken in the wild. In spite of the compromises involved, the level of success is high, judged against the aims of maintaining under cultivation a widely representative collection of pteridophytes, of truly scientific worth, while giving pleasure to the visiting public.

THE NEXT BEST THING TO A WARDIAN CASE

Alison W Rutherford

The nearest we can get nowadays to a Victorian plant-case is a 19th century handlight. There is probably no one skilful enough in metalwork to produce anything that does not look like a clumsy home-made propagator. The handlight appears to have been in use since the late 1830s. The word is sometimes used in gardening books of the period to mean any small cover for protecting a single plant, and includes belljars or bellglasses, but usually refers to a many-paned structure made of cast or wrought iron, copper, lead or tinned sheet-metal. The only type I have come across has been square with a sloping roof which usually lifts off and is more practical than the kind made in one piece. In the 1845 edition of Loudon's *Encyclopaedia of Gardening* there is an engraving of two cloches (in the original sense of the word – bellshaped) faceted with framework "composed of solid iron sash-bars", but it is doubtful if any but the square miniature greenhouse have survived. Old gardens are good places to start looking, but in three instances both the owners and I thought we were looking at a pile of sound specimens. When unstacked, only the roofs were in reasonable condition and the weeds round the lower storeys had corroded them beyond repair. The only ones in fair order were three put in an attic – not later than 1900, the retired gardener said !

Whatever metal has been used it will need some preparation before it is painted. Ferrous metals will need to have every vestige of rust and flaking removed. The old rock-hard putty will probably be a lot stronger than the frame. Stripping tools are useful but care should be taken till the whole surface has been explored; cast iron is far more fragile than most people imagine and there may be cracks entirely filled with rust, while sheet-metal can have pits of pure shale which are hidden until the tool goes through them. Paint stripper helps to soften the putty. Rust remover (an oil-based kind) can be used next with a fine carborundum stone or glass-paper to take off as much rust and flaking as possible. A car-body repair kit might be used to fill in missing parts or strengthen weak places. Copper also needs a cleaning, and even greater care needs to be taken during the removal of the putty, as the frame will bend into a series of little ripples with every gouge you make, and may well be rejected at the glazier's on that account. Copper street lamps are sometimes sold treated with a modern weather-resistant lacquer, but I would not care to try this on the inside of a copper framed plantcase for fear of blooming – in its way, damp air is more destructive than submersion in water or even exposure out of doors. Ferrous metal frames should be thoroughly coated with cold galvaniser and as this will not take well if it meets a speck of grease, all the surfaces should be sponged with methylated spirits; some galvanisers react also to paint strippers and rust removers, so any cracks or rough places should be cleaned with an old toothbrush and methylated spirits. A good quality enamel is perhaps longer lasting than paint.

If you can cut glass you can do the glazing yourself, but if you cannot, make sure the person who is cutting it understands the purpose for which the handlight is to be used, or you may end up with a case so heavy that even with two hands it is a strain to lift and, set at any height, it will be back-breaking and precarious to use. The putty is not put on in the usual way – as much as possible is scraped off or the slender look of the astragals will be lost, especially inside the top of the roof, and it should be painted very soon after glazing, with some care, as this is where rusting often begins. A point to remember is to make sure the triangular panes in the roof are cut really neatly as each one may be different, and if they do not sit down well against the frame the airy effect can be destroyed.

Making an earthbox or even finding a sheet-metal worker may be beyond most of us, and a square plastic washing-up bowl is a good substitute. As these are not very rigid and, even if one with the right dimensions was obtained, unlikely to support the frame other than very precariously, a wooden box extension to the frame, the same length and width, can be made to enclose the bowl which should be able to fit inside it comfortably. Plinths nailed round the top of the outside of the box and raised about half-an-inch above the top edge will make a recess in which the frame will fit and so prevent it being dislodged. Alternatively, the box can be slightly larger to allow the frame to fit inside it and small blocks nailed round the inside about half-an-inch below the top to form a rest for the frame. The wood should be treated with a wood preservative before painting. This will hide the unsightly plastic bowl and have a pleasing appearance. On the market are now square plant tubs which might fit some handlights, or failing that, square plastic shallow gravel trays can be got.

When it comes to a stand and your pocket is not bottomless, it may not be so easy. About five years ago it was not difficult or recklessly extravagant to buy a rustic-log cast iron tripod with or without a sewing-table or other top, but they are now as rare as rubies. If you are reasonably good at joinery your local junk shop or saleroom may have suitable wood or a small table of the right height, and if the top can be made the size of the earthbox, so much the better.

NEW FERN VARIETY FINDS

J W Dyce

I have not got a very large list of new finds this year, but what is lacking in quantity is more than made up in the quality of some of the varieties.

Again the generous variety-giver, *Asplenium scolopendrium,* has added its quota, one of them a first-rater a 'Crispum ' no less. It was found during the Yorkshire weekend meeting in June by Tony Worland in a grike in the limestone pavement on Blue Scar above Arncliffe. This is the second find of this variety in the north in the past few years; the plant is fairly young but promises to develop into a really good example of this variation. The other 'Scollie' was a 'Marginato-cristatum' found by Mary and Chris Potts in the West Country. I know the finders won't mind if I add that this is not a very exciting type of deviation from the normal.

Another very excellent find was made during the Yorkshire meeting on the Blue Scar pavement by Tessa Hill – *Asplenium viride* 'Cristatum', one of the best of this variation which I have seen. The plant was strong-growing with very heavy crests, all very neatly shaped, but it was wedged firmly into a very narrow crack in the rock from which it was impossible to remove it. Fronds were taken for the herbarium and a visit must be made to it sometime to collect spores as these were not ripe at the time of finding.

At Southport this year Bob Trippitt showed us a frond from a find made at Windermere last year of a fully crested *Dryopteris pseudomas*. It approaches closely to 'Cristata the King' but the pinnae crests are not quite so good. One wonders how this plant came into being – the area was the home-ground of the founder-members of our Society and it may well have its ancestry in a variety from one of the several collections which existed there at the turn of the century.

In North Wales, an area which we have not found to be very good for variation, Martin Rickard was fortunate this year during the Excursion there to find a fine variety of *Blechnum spicant* 'Serratum' with deeply incised pinnae. The plant is young and it was noted that the pinnae were also splayed at the tips which may mean that simple cresting will develop as the plant grows. There were no fertile fronds on it and we look forward eagerly to see what will happen when it becomes a mature plant.

This completes my report on new plants, but I think this is a fitting place to mention that in the Savill Garden this year we noted a crested *Dryopteris aemula*. This species is not given to variation – it does not need to! – and it was most interesting to see this plant which was not very big. Jack and Jean Healey who were the leaders at this meeting, remembered that the plant came from their Bracknell nursery.

A reminder that we do not have to go out into the wild to find new good varieties was given to us this year during the Wye Valley meeting. We finished the weekend with a visit to Philip Coke's garden at Stinchcombe, and there we saw some of the first-rate varieties which he has raised and is still raising from spores. He is building up a large and excellent collection of good things by this means, and one particularly good one is a beautiful very finely divided lady fern in the same class as Druery's magnificent 'Plumosum'. With care and devoted attention we can all do it!

PREPARING FERNS FOR EXHIBITION

Reginald Kaye

It may be helpful to prospective exhibitors of ferns to run through some of the points which arise when ferns are being judged at a flower show.

First and foremost, the show schedule must be studied very carefully, and any regulations concerning the various classes should be closely observed. Judges are bound to ignore any entries which are 'not according to schedule', no matter how magnificent they may be. Having considered the schedule – which should be done as soon as it is received – one should then consider which classes can be attempted. It is advisable to have available twice as many plants as are needed for each class so that the best may be selected when the time arrives. Too often in a class for three varieties the judges find two excellent specimens backed up by a very indifferent third. In such a class no individual plant would receive more than a third of the total points for that class, so a bad third plant might well result in a low award.

Plants selected for exhibition should be well grown, free from blemishes, sunburn or damage of any kind, and should be of good colour reflecting good health. If grown in the open — and hardy ferns should be so grown — they should be given the best conditions available by providing a well prepared humus-rich planting medium, adequate shading and protection from strong winds.

Crown-forming varieties should be grown on as single crowns so that the character and grace of a particular variety is not impaired by competition from a jungle of secondary crowns. Preference is always given to a well-grown single crown of a good variety than to a tangled mass of interlacing fronds. Mat-forming species, such as the polypodies, are best grown on in suitable containers from the start as it is a difficult matter arranging a recently lifted specimen of this type in a pan just for the show without this being obvious to the judges.

Naturally an exhibitor will wish to show the best varieties he has at his disposal. To make the best of them, their presentation should be beyond reproach. All pots, pans or other containers must be scrupulously clean, shining like a well-scrubbed schoolboy! Pots should be large enough to receive the plants without cramming, and the soil surface should be masked with layers of fresh vivid-green sheet-moss carefully fitted, or with small stone chippings where appropriate, rather than have the ordinary soil exposed. A layer of dark moist fine peat is better than nothing. The fronds show up so much more attractively when the pots are so dressed. In close competition presentation may well tip the balance between a first and a second.

Particularly in such classes as 'Three normal native species of different genera' it is important to grow on the plants specially and not root up specimens from the wild just before coming to the show. The results are too often very obvious to the judges who may even disqualify as being too poor to judge. It may be evidence of ecological value to show bits of grasses, buttercups and the like mixed up with the ferns but points would be lost at a show for such indifferent staging.

In the case of ground groups at shows every effort should be made to present a neat, well finished and natural appearance by masking all staging material, peat etc by layers of well fitted, fresh green sheet-moss (not shaggy sphagnum or other rough mosses), with perhaps one or two naturally faced stones, a fragment of fallen tree trunk or perhaps a tiny pool. The idea behind the staging should be to present an idealised section of a ferny dell, excluding other plants of course. Some ground groups I have seen appeared to have just fallen off a lorry, or at best a collection of plants piled in a corner awaiting staging.

When packing up the ferns for transport to the show, a wide cone of newspaper, kept open with canes but securely tied, around each plant will prevent many damaged fronds. Plants should be well soaked and drained before putting on the show bench — in the correct space for their class — and the exhibitor's ticket placed in position, name side downwards. Any damaged fronds should be removed neatly before leaving the tent for the judge's arrival. It is a source of some satisfaction to know that a good job has been done in preparing exhibits, but the judge's decision is final.

SOUTHPORT FLOWER SHOW

J W Dyce

Only four competitors supported the fern classes this year, but those who did show put up, with one or two exceptions, very fine exhibits and the honours were fairly evenly distributed among them. We are hopeful that next year there will be two newcomers to pit their skill against the older hands and we shall indeed be pleased to welcome them. As usual, Noel Brookfield won our Society's Silver Trophy with his large group of hardy British ferns in Class 6 – the only other entry in the class was very poor by comparison. The other prize-winners are listed below in order of winning –

Class	7	N Brookfield, R Trippitt (2 entries)
	8	N Brookfield (1), W H Howarth (3). No second. (2 entries)
	9	N Brookfield (1), W H Howarth (3). No second. (2 entries)
	10	H L Schollick, N Brookfield, R Trippitt. (3 entries)
	11	N Brookfield, R Trippitt. (2 entries)
	12	R Trippitt, H L Schollick, N Brookfield. (3 entries)
	13	H L Schollick, R Trippitt, N Brookfield. (3 entries)
	14	N Brookfield, H L Schollick, R Trippitt. (3 entries)
	15	R Trippitt, N Brookfield. (2 entries)
	16	R Trippitt, H L Schollick, N Brookfield. (3 entries)
	17	N Brookfield, H L Schollick, R Trippitt. (3 entries)
	18	N Brookfield. (1 entry)

In some classes the standard was so even that Reginald Kaye, the judge, had great difficulty in deciding the order of merit.

Some outstanding plants were Noel Brookfield's huge pans of polypodies and *Adiantum venustum,* Henry Schollick's *Asplenium scolopendrium* 'Crispum Nobile Bolton', *A.s.* 'Ramosum Merryweather' a wild find by James Merryweather, and *Athyrium filix-femina* 'Frizelliae' one of the best I have seen, and Robert Trippitt's two lady ferns, *A.f.* 'Cruciato-cristatum' and 'Angusto-cristatum', two scolopendriums *A.s.* 'Crispum Settle' and 'Ramo-cristatum Lupton', both his own wild finds and the latter a splendid plant very well grown, and *Polystichum setiferum* 'Angustifolium'.

The Society's Stand had a busy time, with much better support from helpers. Henry Schollick and I were there all the time, assisted by A R Busby for the first two days. Bernard Hayhurst, Norman Robinson, Dick Cartwright and Bob Trippitt also gave us much of their time. Four new members were enrolled and we were kept busy with the many enquiries we received. A record number of members visited us – 16 in all - and we feel that the Stand is certainly justifying its existence. Pot ferns, vases of fronds and a spore display decorated the Stand.

I append a report by the Judge –

Owing to the absence of Mr Mackenzie, not fully recovered from a serious operation, I had to undertake the judging of the ferns alone this year.

As in former years the 100 sq ft group was very well done by Mr Brookfield, though perhaps with fewer varieties than in the past, but the runner-up was a poor effort with little attention paid to cultural skill and arrangement in an effective and natural manner. In view of a prize of £20 being given to a second place winner a much greater effort should be made to create a really attractive exhibit.

The class for six hardy ferns, dissimilar, had some very good plants and judging was a matter of keen examination of each plant. In Classes 8 and 9 the first prizes were well deserved, but the only other exhibits in each which received third prizes, included very badly grown plants. More exhibitors are wanted to encourage a higher standard. Entries in Classes 10, 11 and 12 were all very good and I had to resort to keen pointing before making a decision. The class for athyriums reminds me that I have mentioned before that a well-grown single crown, giving a clear view of the plant's merits, is far preferable to a massive clump of several crowns. Class 14 had excellent plants entered and again it was very difficult to separate the winners. This is how the judges like it. Class 17 for one British fern variety was another very close lot, requiring very close pointing.

It is a great pity that more exhibitors cannot make the effort to show at Southport. The prize money is excellent and as much as £60 can be picked up, surely enough incentive to make a real effort to support the only show in the country which encourages the showing of ferns and offers a superb chance to interest the gardening public in our hobby.

Reginald Kaye

(Would-be exhibitors are referred to Mr Kaye's article on page 23 – 'Preparing Ferns for Exhibition' – ED.)

FERN GARDENS

We publish annually a list of public and private gardens containing ferns, which members can visit. Suggestions and information on other gardens to include will be welcomed. The inclusion of any garden open to the public does not necessarily imply that admittance can be gained at any time a member calls. Lack of space precludes the inclusion of details here and intending visitors must make their own enquiries. It must be understood that we have no personal knowledge of many of these gardens in which the fern content may be negligible.

Intending visitors to private gardens must note carefully the owners' requests to make prior arrangements by letter or telephone.

Botanic Gardens and Gardens open to the public

Botanic Garden, University of North Wales, Bangor, Caernarvonshire
Botanic Garden, Glasgow
Royal Botanic Gardens, Edinburgh
Royal Botanic Gardens, Kew, Surrey
University Botanic Garden, Cambridge
University Botanic Garden, Hull
University Botanic Garden, Leicester
University Botanic Garden, Oxford

Bellahouston Park, Glasgow
Branklyn Gardens, Perth
Harlow Car Gardens, (Northern Horticultural Society), Harrogate, Yorks
Inverewe Gardens, Poolewe, Achnasheen, Ross-shire
Savill Garden, Windsor Great Park, Berks
Sizergh Castle Gardens, Near Kendal, Westmorland
Wakehurst Place Gardens, Ardingly, Haywards Heath, Surrey
Wisley Gardens,(Royal Horticultural Society), Ripley, Surrey

Gardens to Visit, an annual booklet published by the Gardeners' Sunday Organisation, lists gardens opened to the public in aid of the Gardeners' Royal Benevolent Society and the Royal Gardeners' Orphan Fund, which may be visited during the year from March to October. The 1974 edition can be obtained through W H Smith's, Wyman's and other bookshops for 10p, or direct from the Organiser, Mrs K Collett, White Witches, Claygate Road, Dorking, Surrey, for 13p post free.

Private Gardens BY PRIOR ARRANGEMENT

Miss Askew, Grange, Borrowdale, Keswick, Cumberland. LETTER OR PHONE
N Brookfield, 102 Stamford Road, Birkdale, Southport, Lancs LETTER OR PHONE – WEEKENDS PREFERRED
Dr C Catlin, The Beeches, Standon, Nr Stafford. LETTER OR PHONE
C R Fraser Jenkins, Newcastle House, Bridgend, Glamorgan. LETTER ONLY
B Hayhurst, 91 Windermere Road, Freehold, Lancaster. LETTER OR PHONE
Mr and Mrs F J Healey, Ferry Road, South Stoke, Reading, Berks. PHONE
F Jackson, Knotts View, Stonethwaite, Borrowdale, Keswick, Cumberland. LETTER
Miss J Loraine, Greencombe, Porlock, Somerset. LETTER OR PHONE
J Lord, Townhead, Austwick, Via Lancaster. LETTER
H L Schollick, 96 Church Way, Iffley, Oxford. LETTER OR PHONE
Mrs S B Spencer, York Gate, Back Church Lane, Adel, Leeds LS16 8DW LETTER OR PHONE
R Trippitt, 329 Whitehall Road, Westfield, Wyke, Bradford, Yorks. LETTER OR PHONE

Nursery

Reginald Kaye, Waithman Nurseries, Silverdale, Carnforth, Lancs. DURING BUSINESS HOURS

Flower Show

Southport Flower Show. Held in August annually. (1974: 22–24 August)

FERN BOOKS

A service provided by the Secretary is the purchase of fern books from various sources for resale to members at a small profit to help our funds. Newer members are always eager to procure these books which are difficult to pick up elsewhere and our 'bookshop' fulfills a real need. There is usually a fairly good stock in hand and a list can be supplied on application to the Secretary who is also prepared to keep a record of particular books wanted by members, for offer to them if and when the books can be acquired by him.

We also hold stocks of the back issues of the *British Fern Gazette* from Volume I onwards – the early volumes up to Volume 8 deal chiefly with fern hunting, and the description and cultivation of the many varieties of British ferns, written very largely by the two outstanding authorities in this field, C T Druery and Dr F W Stansfield. They are a veritable encyclopaedia of fern knowledge for the variety collector and are available either in complete sets or as separate issues, from the Secretary. Back numbers of the Newsletter are also available from No 5 onwards.

A large stock of David Allen's *Victorian Fern Craze* is kept, selling at 40p or post free 50p. This delightful small book gives a vivid picture of the 'craze', and contains a lot of interesting information which can be put to good use by the grower today. Another booklet we stock is *A Beginners Guide to Fern Study*, written by our member Margaret Merryweather, giving a selection of fern literature and suggestions for study, for the guidance of those wishing to take up the subject seriously; it sells at 25p or post free 30p.

WANTED – FERN BOOKS & OLD GAZETTES – Anyone having no further use for fern books lying around and considering getting rid of them, should give the Society the opportunity to acquire them, either by sale or gift to us. This also applies to old Gazettes which we are always very glad to have. Several instances have come to our notice where, on the death of a member, his Gazettes have been thrown out or burned, and fern books have shared the same fate or been handed over to jumble sales – why not include a clause in your will to ensure that they come to us either by sale or presentation.

ATLAS OF BRITISH PTERIDOPHYTES

As reported in Newsletter No 10 this publication is being compiled and is nearing completion. Due to delays in translating all the Irish records in the Biological Records Centre data bank from the BSBI grid (extrapolated from the UK National Grid) to the Irish National Grid, printing is postponed until early 1974. Records collected this year are therefore welcomed and can be sent to A C Jermy, Department of Botany, British Museum (Natural History), Cromwell Road, London SW7 5BD, or to A J Worland, 102 Queens Close, Harston, Cambridge CB2 5QN.

THE GREENFIELD FUND

When the affairs of our Grand Old Man, Percy Greenfield, were settled his daughter-in-law, Mrs Elizabeth Greenfield, expressed the wish to donate £500 from his estate to the Society as a memorial to him. A meeting was arranged with her, attended by Messrs Dyce, Jermy and Schollick, to discuss the offer and plan how best it could be utilised as a suitable memorial. The Committee asked whether the £500 might be used as the basis of a larger fund to be called the Greenfield Fund, and to this Mrs Greenfield consented. What the Committee had in mind was £1000 which, if placed in a suitable investment trust allowing for annual withdrawals, would yield the sum of £60 to £70 which might be available annually without any liability for tax and at the same time keeping the capital sum intact. The Fund will be controlled by three trustees, the President, Secretary and a third, appointed for a period up to six years, to be nominated by the Committee, and recommendations for awards to be made by them to the Committee.

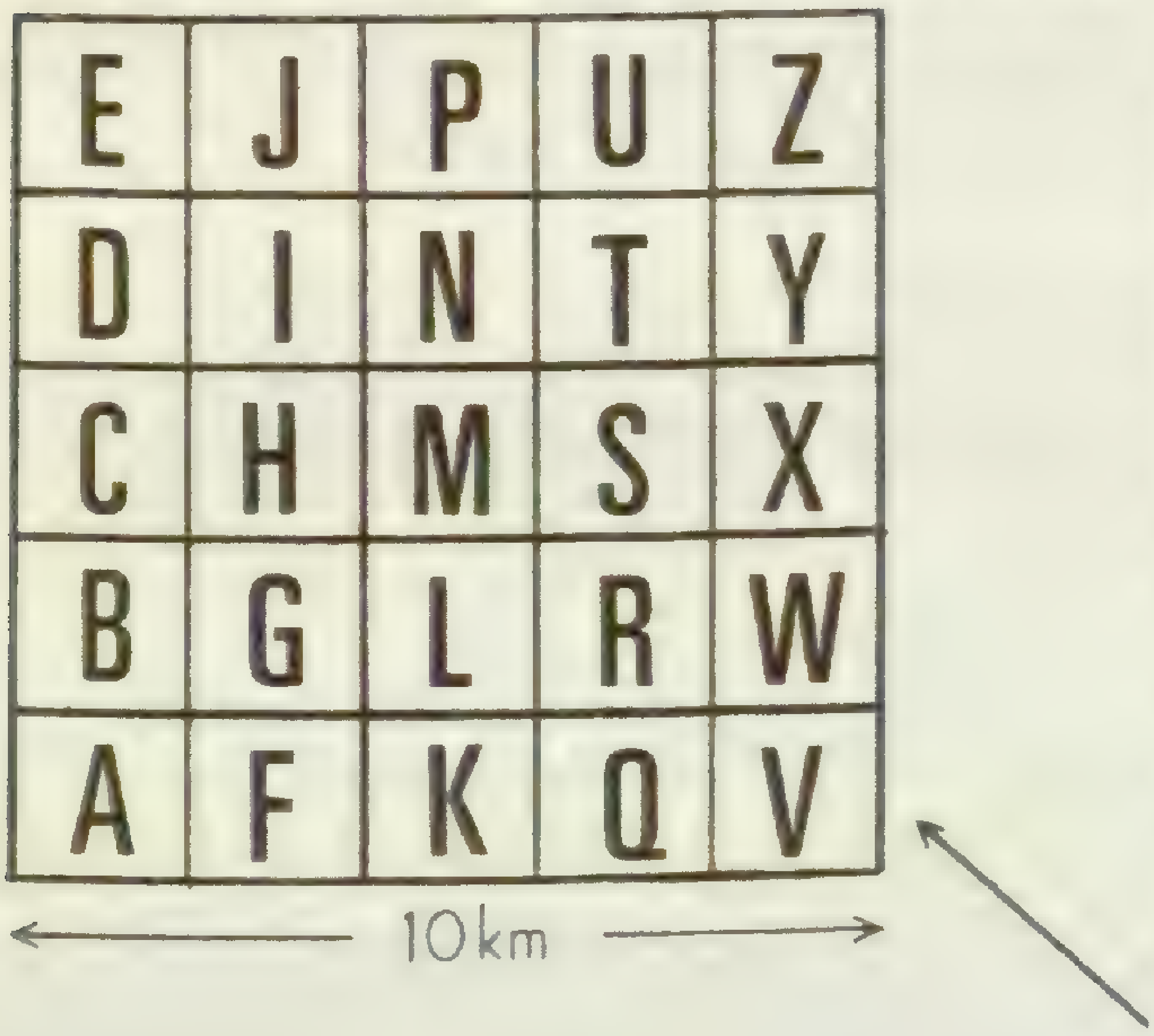
Such projects as approved research work, helping with the cost of necessary equipment, books and travel expenses, awards for meritorious achievements such as the introduction of a new fern variety or plant, and some of the Society publicity projects would be considered as worthy of help from the Fund. Percy Greenfield's fern interests leaned very much towards the non-scientific side of our activities and we feel he would want this to be taken fully into account when decisions are made. Workers eligible for university grants and similar support will, speaking generally, not be eligible for help from the Fund.

Greenfield was an outstanding personality in the history of the Society and the Greenfield Fund would be a fitting memorial to him. Very few of our present members had the pleasure of knowing this very charming and kindly man, but are reaping the benefits of his work for the Society in the pleasure they get through membership with us. The Annual General Meeting approved the transfer of £250 from the Publications Fund which has been derived from the sale of back issues of the Gazette to augment the gift from Mrs Greenfield, and we think that many members may wish to associate themselves with our object in increasing the Fund to £1000 or more. We invite donations to achieve this end.

TETRAD MAPPING — An Amendment

A C Jermy

In the last issue of the Newsletter (No 10 p.32; 1972) I described the lettering of a divided 10km square. The letter 'I' was omitted because of ambiguity. It should have been pointed out that there were two schools of thought here and some workers preferred to omit the 'O'. It is now agreed that the letter to be omitted shall be 'O', and the square will read as shown in the accompanying diagram.



E	J	P	U	Z
D	I	N	T	Y
C	H	M	S	X
B	G	L	R	W
A	F	K	Q	V

2 x 2km square

SPORE AND PLANT EXCHANGE

ORGANISER – David Russell, 20 York Avenue, Stanmore, Middlesex.

We are sorry that, due to domestic troubles, David Russell has been unable to devote much time to the Exchange this year, but he is now busy getting the backlog of enquiries and requests for spores attended to and hopes to have everything working smoothly from now on. He is now compiling this year's list of available spores and it will be sent out with this Bulletin. If, however, the spores you want are not included, write to him and he may be able to get them or suggest where they may be available. Any suggestions for improving the Exchange will be welcomed.

We would remind you that the Exchange can only function if it has spores to exchange, so please make a point of sending spores from your good plants which you think others would like to have, as well as collecting from wild species, but PLEASE DO NOT strip rare ferns of their fronds for this purpose – a few pinnae from one or two fertile fronds will provide all that is required and the plant will not suffer any damage.

The American Fern Society also runs a Spore Exchange, and lists can be obtained from the organiser, Neill D Hall, I225 NE 95th Street, Seattle 15, Washington, USA. This list contains many ferns we do not have, and if you avail yourself of the opportunity to obtain spores from this source please do not forget that the Exchange works both ways, and Neill will be glad to have from you spores of our ferns, varieties as well as species.

The University of Hull Botanic Garden issues a list of seeds and spores offered for exchange: this can be obtained from the Assistant Curator, Botanic Garden, Department of Botany, The University, Hull HU6 7RX.

Some members like to make direct contacts in other countries for exchange purposes, and we shall gladly add your name to the list if you will let the Secretary know. All correspondence must be between interested parties, and not via the Secretary.

The following members are interested in the exchange of spores –

Mrs E S Bayley, Danbury Park, Postbox 21 MR, Marlborough, Salisbury, Rhodesia.
G R Halliwell, 9 The Avenue, Bellambi 2518, South Coast, New South Wales, Australia.
Jaroslav Krecmer, nam J Krautwurma 14, Plzen, Czechoslovakia.
G Kunkel, Camino Viejo 9, Tafira Alta, Las Palmas de Gran Canaria, Canary Islands.
Mrs Sylvia Leatherman, 2637 North Lee Avenue, South el Monte, California 91733, USA.
F H Low-Chow, 42 Lang Parade, Auchenflower, Brisbane, Australia 4066.
Mrs N M Sherlock, 590 E Kings Road, North Vancouver, B C, Canada.
Miss K H Stocker, Mapua, via Nelson, New Zealand.

Professor T M C Taylor, Millstream Road, R R 6, Victoria, B C, Canada, would like to exchange herbarium specimens; he wants any European species and can offer North American and Hawaiian species in exchange.

Robert Trippitt, 329 Whitehall Road, Westfield, Wyke, Bradford, Yorks, wishes to exchange ferns with other members. He is particularly interested in the Scolopendriums and will welcome exchanges which will enable him to obtain varieties missing from his collection.

The Exchange is entitled the Spore and Plant Exchange, but we appear to do no exchanging of plants. This, of course, is done privately between members, but it was suggested at the AGM this year that we could do a lot more in this way by bringing spare plants to meetings for disposal to other members at a small charge for Society funds. Will members coming to meetings next year please keep this in mind. A very useful function of this exchange of plants can be to ensure that good fern varieties are spread around and so be less likely to get lost to cultivation. It will be a good thing, therefore, to propagate from your best plants, both vegetatively and by spore sowings, and bring some of the young plants to our meetings – it may be that one day you will be able to regain a lost treasure from the recipient of one of your spare plants!

WORLD FERN SOCIETIES

For the information of members who are interested in the ferns of other countries, we give a list of fern societies known to us. If others exist, the Secretary will be glad to have information about them.

AMERICAN FERN SOCIETY c/o Smithsonian Institution, Washington, DC, USA
LOS ANGELES INTERNATIONAL FERN SOCIETY Wilbur W Olson, 2423
Burritt Avenue, Redondo Beach, California 90278, USA
JAPANESE PTERIDOLOGICAL SOCIETY c/o Dr K Iwatsuki, Dept of Botany,
Faculty of Science, Kyoto University, Kyoto, Japan
NIPPON FERNIST CLUB c/o Professor Satoru Kurata, Dept of Forest Botany
Faculty of Agriculture, Tokyo University, Hongo, Bunkyo-ku,
Tokyo, Japan 113.
NELSON NEW ZEALAND FERN SOCIETY c/o Miss K H Stocker, Mapua,
via Nelson, New Zealand

RECORDING IN WALES

The Working Group for Biological Recording in Wales was formed as an outcome of a Biological Recording Conference held in the National Museum of Wales, Cardiff, in May 1971, under the auspices of the Museum's Departments of Botany and Zoology and the Biological Records Centre, Monks Wood. The Working Group, comprising staff from the Natural History Departments of the Museum, the Nature Conservancy and Welsh University Colleges as well as individual members of various national societies, undertook the following aims:

1 To discover all persons or groups at present carrying out recording in Wales, and all local experts; prepare lists of these for general circulation.
2 Investigate those areas where recording was not taking place and devise ways to ensure future coverage.
3 To organise one-day or weekend meetings of national and local societies in Wales in order to co-ordinate their individual efforts. Such meetings might be combined with a field outing in an area as mentioned in Aim 2.

4 To channel records into nominated centres and arrange for central publication in a recognised journal or a special newsletter, such a newsletter also serving as a means for advertising meetings and activities associated with biological recording.

Lest Aim 3 should be thought to restrict attendance at field meetings to members of national and local societies, it has since been stressed that all interested amateurs are particularly welcome.

So far, four weekend meetings have been held, in Radnorshire, Denbighshire, Montgomeryshire and Cardiganshire. They have been attended by specialists covering a wide field of natural history; vascular plants, fungi, lichens and bryophytes as well as several groups of invertebrates and vertebrates. Areas visited have included established and proposed reserves, for which species lists were made and advice given as to their worthiness or otherwise. Guidance has been readily available for those wishing to expand their knowledge of particular groups. It is hoped that more members of the British Pteridological Society will attend future meetings, to contribute their own specialist knowledge, to record or simply to enjoy the advantages of such an interdisciplinary gathering.

The Departments of Botany and Zoology at the National Museum of Wales are compiling an index of biological recorders in Wales. It is hoped to include not only the official recorders of the various specialist societies but also anyone actively engaged or interested in recording who would be willing to help the recorders, assist visiting botanists, suggest localities for field meetings, etc. Anyone able and willing to have their name included in this index or who requires further information about the field meetings, is requested to contact the Keeper of Botany, National Museum of Wales, Cardiff, CF1 3NP.

MARRIAGE AND BIRTHS

We are happy to make the following announcements —

Marriage : David Russell — Mariam Driggers

Our good wishes go with them for a long and happy married life together. David is a member of the Committee and the organiser of our Spore Exchange.

Births :	Martin and Hazel Rickard	— a daughter on 27 November 1972
	Tony and Barbara Worland	— a son on 21 October 1973
	James and Margaret Merryweather	— a daughter on 24 October 1973

We congratulate the three couples, all well-known active members in the life of the Society, and look forward to seeing in due course three new members in the field, all imbued with their parents' love and enthusiasm for ferns !

OBITUARIES

It is with great regret that we have to announce the following deaths –

R P Astley died in March 1973 after an illness of some months. He joined the Society in 1969 and we had little opportunity to get to know him well, but remember with pleasure our meetings during the Kew annual visits which he always attended. We extend our sympathy to his widow.

Mrs M R Stuart joined us in 1961 but never took an active part in the life of the Society, although her beautiful garden which contains many ferns was open to visits from members. She died suddenly in June 1973 only a short time after the death of her husband.

Rev J C Thompson was another recent member who joined the Society in 1970 and died in the spring of this year. We extend our sympathy to his widow.

Kate M Catlin joined the Society in 1970 and quickly entered into our active life along with her husband, Dr Charles Catlin. She was a very skilful gardener and plantswoman and their large garden at Standon, near Stafford, is a treasure-house of fine plants which they were both devoted to. She was greatly interested in ferns and was quickly building up a very good collection. Charles has not long retired from his demanding work as a medical practitioner and they were both looking forward to a fuller life together in pursuit of their mutual interests which included active participation in the affairs of the Society. The news of Kate's death from injuries received in a serious motor accident this summer, was a very great shock to those of us who knew her and enjoyed her companionship in the field and elsewhere. Our loss is great, but infinitely more so is that of Charles and their family, and to them we extend our very deepest sympathy.

J W Dyce

Constance Ellen Cameron Davidson. It was with the utmost regret that we learned of the death of Mrs Davidson on 1 January at her home Linton Muir, West Linton, Peebles-shire. Mrs Davidson, the wife of Dr James Davidson, a recent President of our Society, was a very keen plantswoman, a prominent member of the Scottish Rock Garden Club for which she had acted as Slide Librarian, Distribution Officer of Seeds and in other capacities as an official of the SRGC. She also was an ardent supporter in local politics. In former years Mrs Davidson accompanied Dr Davidson on our expeditions when all present fell under the spell of her charming and genial companionship. Our deep and sincere sympathy is extended to Dr James Davidson.

R Kaye

Harold Augustus Hyde (1892–1973). Harold Hyde will be remembered by members of this Society, and indeed by all those who are seriously interested in British ferns, as co-author (with A E Wade) of *Welsh Ferns.* Since it was first published in 1940, this book has been widely regarded as the British pteridologist's "bible". The 5th edition, enlarged to include all groups of living British pteridophytes, was published in 1969.

After obtaining a first in the Natural Sciences Tripos, Parts 1 and 2, at Downing College, Cambridge, Hyde taught at King Edward's Grammar School, Birmingham, Stamford School, Lincs, and Tonbridge School, Kent, between 1919 and 1922. Then he was appointed Keeper of Botany at the National Museum of Wales, Cardiff, a post he held, and which held his enthusiasm, until he retired in 1962. During his 40 years service the collections in the Welsh National Herbarium grew from c. 25,000 specimens to nearly 200,000 and the exhibition galleries became well-known for their high standard of display and especially for their remarkably life-like models of plants. Hyde had many botanical interests. He distinguished himself particularly in the field of aeropalynology and after his retirement he continued this work at the Asthma and Allergy Research Unit of St David's Hospital, Cardiff. He was a Fellow of the Linnean Society and of the Museums Association. He leaves his wife, Dorothy, and a son and daughter.

S G Harrison

REVIEW

THE GARDEN BOOK OF EUROPE by Dr D G and J P Hessayon, 160 pp. 21 x 27.3 cms, Elm Tree Books/Hamish Hamilton, October 1973, £2.25.

This book surveys the European gardening scene in extraordinary detail and is a new break in gardening literature. It is not a book to sit down and read right through, but is a reference book containing an encyclopaedic amount of gardening information which represents much hard work and research by the authors.

Plates in excellent colour depict garden scenes in many European countries, accompanied by histories, statistics, flowers and vegetables grown and a multitude of other facts, many of them the small – one could say the unimportant – bits of information which are not encountered elsewhere and prove of intense interest. As the book itself states, it enables us to look over our national garden fence for the first time.

The lay-out is unusual and completely different from other kinds of gardening books, and has a lively unexpectedness as the pages are turned which rivets the interest. The chapters on the various countries do not follow in sequence, but are interspersed with pictorial guides on a variety of subjects – various flowers, plants in the home, flower colours, conifers, cacti, topiary, climate and many others, all concise but bursting with useful information, set out in an easily assimilable way. It has one fault – a regrettable omission; it does not contain a chapter on ferns, although the name of our Society appears in the list of specialist societies.

There is no heavy reading in the book, and the vast amount of information is put across in a delightful and interesting manner. I have said it is a reference book, but it is much more – a fascinating book for the gardener to keep by his chair to browse through during the long winter evenings. Dr Hessayon is Chairman of Pan Britannica Industries Ltd, one of our most important agricultural and gardening chemical companies, and is well-known as the author of the "Be Your Own Gardening Expert" books. He and his wife are to be congratulated on the unique way they have assembled so much gardening information between the covers of one book and made it so readable – undoubtedly excellent value for £2.25.

J W Dyce

MEETINGS PROGRAMME 1974

MEETINGS SECRETARY A J Worland, 102 Queens Close, Harston, Cambs CB2 5QN
MEETINGS COMMITTEE R F Cartwright J W Dyce M H Rickard

Saturday 9 February	Indoor Meeting at the British Museum (Natural History), Cromwell Road, London SW7 5BD, at 3 pm.
Saturday 11 May	Visit to the Fern Houses and outdoor fern borders at Kew Botanic Gardens at 2 30 pm.
Friday/Sunday 31 May/2 June	Weekend Meeting at Cheddar Gorge. Leaders : Chris and Mary Potts. Centre : Oak House Hotel, The Square, Axbridge, Somerset.
Saturday 8 June	Visit to Henry Schollick's garden at 96 Church Way, Iffley, Oxford, at 1 pm. A "Bring and Buy" plant sale will be held.
Sunday 23 June	Day trip to Essex/Suffolk. Leader : Vivien Green. Meet at Honeysuckle Cottage, Halstead Road, Aldham, Colchester, Essex, by 11 30 am, or earlier after 10 30 am.
Saturday/Saturday 29 June/6 July	Week Meeting at Tiverton, Devon. Leader : Jimmy Dyce. Centre : Boars Head Hotel, Bampton Street, Tiverton.
Friday/Sunday 19/21 July	Weekend Meeting in Dovedale. Leaders : Marjorie Castellan and Margaret Kingston. Centre : New Inns Hotel, Alsop en le Dale, near Ashbourne, Derbyshire.
Friday/Sunday 2/4 August	Weekend Meeting in Calder Valley and on Hardcastle Crags. Leader : Bob Trippitt. Centre : White Lion Hotel, Bridge Gate, Hebden Bridge, Yorks.
Friday/Sunday 16/18 August	Weekend Meeting in the Black Mountains. Leaders : James and Margaret Merryweather. Centre : Crown Hotel, Broad Street, Hay-on-Wye, Herefordshire.
Thursday/Saturday 22/24 August	Southport Flower Show. Many fern classes showing selection of best varieties. Visit the Society's Stand in the Societies' Tent.
Saturday/Saturday 7/14 September	Week Meeting at Sedbergh, Yorkshire. Leaders : Fred Jackson and James Merryweather. Centre : Bull Hotel, Main Street, Sedbergh.
Friday/Sunday 27/29 September	Weekend Meeting in Norfolk. Leaders : Tony Worland and Bert Bruty. Centre : George Hotel, Station Street, Swaffham.
Saturday 5 October	Indoor Meeting at the British Museum (Natural History), Cromwell Road, London SW7 5BD, at 3 pm.
Saturday 5 October	Annual General Meeting to be held at the British Museum (Natural History), Cromwell Road, London SW7 5BD, at 3 30 pm.

ADDITIONAL MEETING at which members participation is invited –

Wednesday/ Wednesday 24/31 July	Clive Jermy is giving a course on pteridophytes at Kindrogan Field Centre (Scottish Field Studies Association), Enochdhu, Blairgowrie, Perthshire. Information from the Warden.

THE BRITISH PTERIDOLOGICAL SOCIETY

LIST OF MEMBERS

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BRUTY H J, BEM, AH, 23 Dagmar Road, Kingston-upon-Thames, Surrey.
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HOME Miss H M Logan, Edrom Nurseries, Coldingham, Berwickshire.
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Back numbers of the GAZETTE and the BULLETIN are available for purchase either as complete sets or single issues. Further details can be obtained from the Secretary.

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THE
BULLETIN

Vol 1 1974 No 2

SECRETARIAL NOTES

First I would like to thank the many members who have written to compliment me on our new journal and the many others who have had useful suggestions to make for its future improvement. All have been considered appreciatively and are acknowledged gratefully, and I hope that this issue will benefit accordingly. There has been some criticism of our cover which is thought to be too dark, but we wanted a green one and it had to be sufficiently distinct to distinguish it from the cover of the Gazette. Our printers had some difficulty in getting a suitable paper last year and in spite of the worsening paper market have been able to get a similar one for this issue, but this may not always be the case in future years and we may have to take what we can get whether we like the colour or don't like it.

In the Newsletter we were in the habit of repeating certain information annually for the benefit of newer members and much of this was included in the Bulletin last year. Space is too valuable to continue this practice, however, and such items of information will in future be included only in occasional issues. Another feature which has attracted some criticism is the detailed reporting of our meetings but there is a strong feeling among those members who attend meetings that they should be fully reported so that the information is available for reference purposes when planning future visits to the areas concerned either by the Society or by individual members.

SUBSCRIPTIONS became due on 1 July – have you paid yours ? Or, if you pay by bankers order, have you still omitted to instruct your bank to change the amount from £1.25 to £2.00. In spite of my repeated requests many members have still taken no steps to instruct their banks to increase the amount, or if they have done so, to ensure that the banks are carrying out their amended instructions. Banks are not what they used to be – I know, for I spent my working life in one ! Funny things happen these days – for instance, in two cases paying banks have transferred the subscription amounts THREE times since July, others have paid twice and some have paid the new subscription amount AND the old one. We laugh and think it is all very funny, BUT – the overpayments have to be refunded which means more work for the Treasurer. The two dozen members whose banks have paid only £1.25 again this year have to be entreated once more to do something about it – it means only a few minutes work for each member but for me it has to be multiplied by 24 ! If you have reason to think that your bank is not handling your payment order correctly DO PLEASE check with them and have the matter put right.

IMPORTANT NOTICES –

New Treasurer. Will members please note that Dr B A Thomas, Biological Sciences Dept, University of London, Goldsmiths' College, New Cross, London SE14, has now taken over from the Secretary the Office of Treasurer, and in future all subscriptions should be sent to him direct.

New Spore Exchange Organiser. David Russell has resigned from this Office owing to ill-health and all correspondence and spores for the Exchange should now be sent to Mr R F Cartwright, 13 Perry Mill Road, Peopleton, near Pershore, Worcs.

MEETINGS CARDS 1975 are enclosed with this Bulletin to all inland members. Overseas members, visiting Britain, can obtain them on application to the Meetings Secretary, Mr A J Worland, 102 Queens Close, Harston, Cambridge CB2 5QN.

READING CIRCLE – The American Fern Journal, a quarterly containing much information for those seriously interested in ferns, is circulated to Reading Circle members. The Secretary will gladly add new names to the list.

CHANGE IN NAME OF THE SOCIETY – With the last issue of the Bulletin we sent out a voting paper to give all members the opportunity to vote on a proposal that the name of the Society be changed to the British Fern Society. We thank the 137 members who completed and returned the form, and the result was as follows –

In favour of the change	–	55
Not in favour of the change	–	82

The Society continues, therefore, to be called the British Pteridological Society.

THE GREENFIELD FUND – We announced in last year's Bulletin that Mrs Elizabeth Greenfield, the daughter-in-law of our late member, Percy Greenfield, had offered to donate £500 to the Society from his estate. It was decided to use the amount to open a Greenfield Fund and endeavour to increase it by additional donations from members and a transfer of £250 from the Publications Account to bring the amount up to £1000. Suitably invested this could produce an annual income sufficient to give some help to projects by members such as approved research work, Society publicity projects, or awards for meritorious achievements. Including Mrs Greenfield's gift which will be received when the legal formalities have been completed, the Fund now stands at £891 and we shall be grateful for further contributions to bring the amount up to the required £1000.

FIDDLEHEAD FORUM – Since 1971 the American Fern Society has issued a Newsletter and in February of this year the format was changed and it was given the delightful name of *Fiddlehead Forum.* It still continues in sheet form as a medium of communication with members and is in small print which allows a large amount of reading matter to be included in a small space. We hope to see it elaborated in due course, as our own Newsletter and Bulletin have been from similar simple beginnings, and we wish the Editor every success with the new publication.

GUERNSEY SPECIAL ISSUE OF FERN STAMPS ON 7 JANUARY 1975 – Will members interested in this please read the announcement on page 21 and advise the Secretary immediately.

FINANCIAL STATEMENT AT 30 JUNE 1974

ORDINARY ACCOUNT

Income

1972/73	1973			£	£
£ 172	30 June	To	Opening Balance		58.25
619			Subscriptions		846.52
1			Donations		5.75
			Sales –		
132			Gazettes, Newsletters, Bulletins	75.13	
27			Victorian Fern Craze	33.30	
9			Beginners Guide	4.65	
–			International Directory of Pteridologists	50.25	
–			Reprints	29.75	
20			Book Sales	20.00	
4			Sundry	1.80	214.88
50			Interest on Deposit Account		92.01
					£ 1217.41

Expenditure

106	By Payment	Metloc a/c Bulletin Vol 1 No 1		197.60
		Index for Gazette Vol 10		
		Typing costs	5.62	
–		Econoprint – Printing Costs	95.00	100.62
		Subscriptions –		
		Royal Horticultural Society	5.00	
10		Council for Nature	5.05	10.05
71		Printing and Stationery		109.23
8		Bank charges on Current Account		11.60
12		Meetings Expenses		12.50
108		Secretarial and Editorial Postages		142.96
200		Transfer to Publications Account		160.26
430		Econoprint – ESTIMATED cost of Gazette Vol 11 part 1		450.00
		Balance in hand – ESTIMATED		22.59
				£ 1217.41

PUBLICATIONS ACCOUNT

Income

			£
1973 30 June	To	Balance	998.74
1974 30 June		Transfer from Ordinary Account	160.26
			£ 1159.00

Expenditure

Metloc – printing International Directory of Pteridologists	59.00
Transfer to Greenfield Fund	250.00
Balance in hand	850.00
	£ 1159.00

GREENFIELD FUND

1974 30 June	To	Contributions from members during 1973/74	33.20
		Transfer from Publications Account	250.00
		Balance in hand	£ 283.20

THE ANNUAL GENERAL MEETING – 5 OCTOBER 1974

The 71st Annual General Meeting, held at the British Museum (Natural History), was attended by 32 members. The Secretary reported that there had been a much smaller intake of new members but this was offset by fewer resignations and lapsed memberships. However, a large number of subscriptions are in arrears and it is feared that many of the members concerned do not intend to pay because of the increased subscription rate. We must therefore be prepared to accept the fact that, when the position is clarified, we have sustained a reduction in membership. As known at present we have 454 paying members plus 5 honorary members and 29 spouses, making a total of 488. Last year's figures were shown as 451, being 446 paying and 5 honorary members, but no figure was quoted for wives/husbands. New members continue to come in steadily and we hope to make good the drop in numbers before too long. Running the Society is still a full-time job but we have at last got a new Treasurer to take some of the load off the Secretary. He is Dr B A Thomas, one of our assistant-editors, and a lecturer in botany at London University Goldsmiths' College at New Cross.

There are to be changes in the editorship, for A C Jermy is resigning as Editor-in-Chief owing to pressure of work. He has held the Office since 1959 and with his appointment the Society widened its scope to include fern botany, and the Gazette opened its pages to the scientific botanist. Over the years he has built it up into one of the leading botanical journals. We are very sorry to lose him but glad to add that he will still remain with us on the Editorial Panel. We are fortunate in being able to appoint Dr C N Page, at present an assistant-editor, in his place as from July 1975, and we wish him success with this job which in these days of industrial dispute and paper shortage promises to be no sinecure. We have now completed Volume 10 of the Gazette and with the new volume it has been decided to change its name to the shorter one of "Fern Gazette', Another change is the appointment of R F Cartwright to the post of Organiser of the Spore Exchange – David Russell has had to relinquish this owing to ill-health. The two retiring members of the Committee are B Makin and M H Rickard and we thank them and David Russell for their work on behalf of the Society while in office. The appointments of a new Chief Editor and Treasurer removed two more members from the Committee and the four vacancies have been filled by H J Bruty, R F Cartwright, Lt Col P G Coke and F J Tingey. There were no other changes and our popular President, Henry L Schollick, was re-elected for a third term in the Office.

Meetings in the field have not been at all well attended with the exception of the Sedbergh one, and the same small band of keen enthusiasts have been our main support at all of them. Next year we are cutting down on the number of weekend meetings, but will try to foster regional meetings, both in the field and indoors. This new approach was tried out in Birmingham this year when A R Busby organised a coffee evening in September to bring members in the Midlands together, but he had a very poor response. We hope the idea will catch on and such meetings grow in number and in popularity in different parts of the country where members are concentrated.

At last year's AGM it was decided that the proposal to change the name of the Society should be settled by a postal vote. The result was very definitely against the change and so we continue to retain our present name.

We had hoped that the increased subscription rate would improve our finances but the big increase in costs has swallowed up the increase and we finished this year with a reduced balance. It was recognised that the Bulletin must cost more than the Newsletter but about half of the £91 increase resulted from the inclusion of the membership list which was very much overdue and had to be published. Also, the Index to Volume 10 of the Gazette has to be published although costing £100, but these two outlays amounting to about £150 will not have to be met again for some years. In the meantime, however, other prices are escalating and there are undoubtedly difficult times ahead which will entail careful husbanding of our resources.

MEETINGS 1974

We again enjoyed the facilities of the British Museum (Natural History) when over 30 members attended our *Spring Indoor Meeting* on 9 February. Various exhibits were on show including plants and books, and there was a good selection of books for sale. We had a most interesting talk which was much enjoyed, by Dr W A Sledge of Leeds University, on his fern hunting experiences during a visit to Samoa. A light meal was provided, followed by a showing of members slides on the theme "Fern Variation".

After the AGM on 5 October our *Autumn Indoor Meeting* was held at the Museum with 32 members present, including several new members whom we were very pleased to welcome. After a buffet tea we had a talk, illustrated by slides and various exhibits, from John Woodhams on his visit at the beginning of the year to New Guinea and New Zealand. This was listened to with great interest but unfortunately had to be rather rushed at the end as our programme was very much behind time, and for this same reason we had to cut out the showing of members' slides taken at the year's meetings. Fern plants were on exhibit and for sale and we had our usual book sale.

This year the *Kew Meeting* on 11 May was attended by 22 members and friends. We were shown round the Fern Houses by Professor Holttum and John Woodhams and they pointed out and talked about many of the more interesting ferns. A brief visit was paid to parts of the Gardens where hardy fern varieties are grown. We very much appreciated a welcome cup of tea and cakes, kindly provided by Joan Woodhams during the afternoon, and after the Meeting most of us accepted the invitation of Mrs Holttum to go on to their home nearby for tea. Mrs Holttum, assisted by the Professor, cheerfully and most efficiently coped with our numbers and their hospitality was greatly appreciated and made a very enjoyable finish to the day.

DAY MEETINGS

Visit to the President's garden at Oxford — 8 June. With memories of the very successful meeting held here two years ago a large number of members turned up and were royally entertained by Henry and Peggy Schollick. It was perhaps well for our hosts that the number present (in the twenties) was not as large as the 45 who attended on the previous occasion. An innovation was a "Bring and Buy" sale of fern plants, and when I add that £36 was made it will be appreciated how popular this proved to be and many members were able to acquire treasures from the plants brought by others and also from the President's collection. By the vote of all present it was decided that the proceeds should go into the Greenfield Fund. *(As the amount was not received by the Treasurer before the end of our year on 30 June it is not included in the balance of the Fund shown on page 4 — ED.)*

Essex/Suffolk — 23 June. Vivien Green again led this meeting which unfortunately was very poorly attended — only 4 members and one visitor were present. After seeing our leader's fine and beautifully grown collection of ferns and enjoying a cup of coffee, we visited some woods in the neighbourhood of Aldham where ferns were few and then moved on to Fordham Heath where the four more common dryopteris species only were noted. In the afternoon we re-visited Fingringhoe Nature Reserve where last year we allowed ourselves too little time to see all we wanted to; this time we wandered further afield but were unable to add any further fern species to the list we compiled. We found the colony of *Lycopodium clavatum* still flourishing and spreading, while the single plant of *Osmunda regalis* which we were instrumental in adding as a new record to the Reserve plant list last year was still there with fronds about a foot high. The undergrowth is thick in very boggy impenetrable ground near the plant and we feel that others may grow hidden away in inaccessible corners.

WEEKEND MEETINGS

Cheddar Gorge – 31 May/2 June. A small party of six met at the Oak House Hotel, Axbridge and under the leadership of Chris and Mary Potts commenced the weekend by exploring Cheddar Gorge. The general condition of the plant life was affected by almost ten weeks of drought and many of the smaller ferns were withered and difficult to find. Growing about halfway up the Gorge were *Asplenium scolopendrium, Dryopteris filix-mas, Polypodium australe, Asplenium trichomanes, A. ruta-muraria, Polystichum aculeatum,* and towards the top end *Cystopteris fragilis, Gymnocarpium robertianum* (at least eight well-established colonies), *Dryopteris austriaca, D. pseudomas, Athyrium filix-femina, Polystichum setiferum* and some very dry specimens of *Asplenium ceterach.* A few plants of the Cheddar Pink were seen growing on ledges overlooking the road. The afternoon was spent at the Ebbor Gorge near Wookey Hole but no new species were discovered other than *Equisetum arvense.* On the return journey the Mendip Lead Mines at Charterhouse were visited and two more equisetums identified, *E. fluviatile* and *E. palustre.* On Sunday, Sand Point near Weston-super-Mare provided a change of locale but only seven fern species were seen, amongst them *A. adiantum-nigrum* and *A. marinum.* After lunch fern hunting was abandoned due to the arrival of the long-awaited rain.

Dovedale – 19/21 July. The eight members who turned up for this meeting centred at the New Inns Hotel near Dovedale had a very active weekend under the energetic leadership of Marjorie Castellan and Margaret Kingston. On the Saturday morning we worked down Dovedale from the north end at Milldale but though the area is ferny there was not a large number of species to be seen – only eight were recorded including *Asplenium ruta-muraria, A. trichomanes, Cystopteris fragilis, A. scolopendrium* and *Polystichum aculeatum.* In the afternoon we travelled north to Dalehead near Hartington and visited a colony of *Ophioglossum vulgatum* known to our leaders. On a previous visit earlier in the season they had also seen *Botrychium lunaria* here but now it had disappeared, probably grazed by sheep. We returned south by the Manifold valley stopping at some places en route but only ten species were noted, among them *Athyrium filix-femina* and *Pteridium aquilinum,* both of which we found to be quite uncommon in the area we hunted during the weekend. On Sunday we travelled north again to the disused railway cuttings near Parsley Hay Station. Here we found a much richer fern flora which included five aspleniums, *A. adiantum-nigrum, A. ruta-muraria, A. scolopendrium, A. trichomanes* and, best of all, *A. viride* growing profusely and large. *Cystopteris fragilis* and *Oreopteris limbosperma* were also there and we were very delighted to find a colony of *Gymnocarpium robertianum.* We finished the weekend with tea at Marjorie's cottage at Wootton, calling en route at Ilam Hall which belongs to the National Trust. In the woods along the river *P. aculeatum* was plentiful. We also stopped briefly on Weaver Hills to see a fine colony of *A. ceterach* recently found by our leaders in an old quarry.

Calder Valley and Hardcastle Crags – 2/4 August. This meeting attended by eight members was held in what would appear to be a most unattractive area for ferns, surrounded by the great industrial towns of Accrington, Burnley, Halifax, Keighley and Rochdale, to mention but a few of them. High moors and deep ravine valleys radiate from Hebden Bridge where we were centred at the White Lion Hotel, and before industry laid its clutching hands on the district it must have been one of great natural beauty, and to some extent still is. On the Saturday, led by Bob Trippitt, we explored the valley of Hebden Water which joins the Calder at Hebden Bridge, and walked up as far as Hardcastle Crags. Ferns were plentiful but of the more common species and thirteen were recorded as well as two equisetums. The lady fern was the most common and we noted abundant *Dryopteris austriaca* and *Oreopteris limbosperma.* There were some good colonies of *Cystopteris fragilis* on bridges and walls and also some *Asplenium ruta-muraria* and *A. trichomanes.* On Sunday we passed through a town well-known in earlier times to fern growers, Todmorden, the home of the Stansfield Fern Nursery. Industrial development makes it difficult to imagine a fern nursery existing in the place and much searching by fern men in more recent times has failed to discover any ferns of even minor interest which could have originated from spore escapes from the vast collection of superb varieties which were cultivated in the nursery. Beyond Todmorden up the Calder valley we hunted on Thievely Pike but the cliffs supported a very meagre fern population, only seven species and two allies being seen, among them *Athyrium filix-femina, Blechnum spicant, Dryopteris abbreviata, Oreopteris limbosperma* and *Equisetum sylvaticum.* A highlight of the weekend was a visit by some of us on Saturday evening to Bob Trippitt's garden near Bradford to see his excellent collection of British fern varieties.

The Black Mountains — 16/18 August. The Merryweathers who had planned to lead this meeting were unable to be with us and their place was taken by Martin Rickard who had returned only a few days previously from France where he had spent most of the summer. We had a better attendance of eleven members most of whom foregathered on the Friday evening at our centre, the Crown Hotel in Hay-on-Wye. A few of the early arrivals had time on the Friday afternoon to explore the nearby village of Cusop and the wooded valley of Cusop Dingle. We found twelve species, among them *Asplenium ceterach* on the village walls along with *A. ruta-muraria* and *A. trichomanes.* In the Dingle *Polystichum setiferum* and *A. scolopendrium* were seen and there was a great abundance of *Athyrium filix-femina.* On Saturday we travelled south to the Gospel Pass in the Black Mountains where we hunted the cliffs on the side of Darren Lwyd and recorded fourteen species which included *Cystopteris fragilis, Phegopteris connectilis, Polystichum aculeatum* and in the screes abundant *Gymnocarpium dryopteris.* In the afternoon we paid a short visit to the headwaters of the stream flowing through Cusop Dingle near New Forest Farm and found the ferns to be similar to those seen the previous day in the Dingle itself. A magnificent colony of *C. fragilis* flourishes on walls at the spot where we parked the cars. The weather deteriorated and we returned to Hay early in heavy rain but the secondhand bookshops in the town kept us fully engrossed for the rest of the day. On Sunday we returned to the mountains and spent our time on the cliffs on the north side of Rhos Dirion, recording thirteen species, among them *A. viride, C. fragilis, G. dryopteris, Polypodium vulgare, P. aculeatum* and a single plant of *A. scolopendrium* hidden away in a crevice.

Norfolk — 27/29 September. This was another very poorly attended meeting, and only two members staying at the centre, the George Hotel in Swaffham, were in the field on Saturday. Unfortunately, the area picked for hunting is occupied by a huge military training ground and we spent the whole morning travelling round it to find that all the likely fern ground displayed large notices with the brief and to the point injunction

"No admittance — Keep out"! North of Mundford we did at last find some promising ground on Foulden Common but it produced only four ferns, *Dryopteris austriaca, D. carthusiana, D. filix-mas* and *Pteridium aquilinum* plus one equisetum *E. arvense.* This paucity was somewhat relieved by the fact that *D. carthusiana,* not one of the most common of ferns, was present in abundance. On Sunday our members were increased to six and the morning was spent in the Leziate area near Kings Lynn. We noted five ferns here, the same ones seen the previous day with the addition of a single plant of *Athyrium filix-femina,* the only specimen of this fern found during the weekend. *E. palustre* was also seen. Of great interest was the abundance of very strong growing *D. carthusiana.* On Leziate Fen the ferns were again similar but we added *D. pseudomas,* found growing near here at the road-side. We finished the weekend on Royden Common where *Osmunda regalis* was the only fern seen, in addition to bracken. In all, only seven ferns and two horsetails were recorded during the weekend.

WEEK MEETINGS

Tiverton, Devon — 29 June/6 July. We were hoping to have a good attendance at this meeting as it is some years since we last had a week meeting in the area. Only five members attended for the whole time, Bert Bruty, Jimmy Dyce, Alf and Ray Hoare and Henry Schollick. Part-time attenders were Chris and Mary Potts and Kenneth Adlam accompanied by his son. All of us are fern growers so it was a foregone conclusion that the meeting should develop into a variety hunt, particularly as we were in the centre of the *Polystichum setiferum* area where most of the well-known fern varieties were found in the past. The weather was not too kind but the frequent showers were light enough to allow continued hunting in the lanes in which we concentrated most of our time so we kept reasonably dry.

The country round Tiverton has never claimed much of our attention during previous visits and this omission we proceeded to remedy. On Sunday we explored up the west side of the Exe as far as Bampton through fine hilly country and recorded twelve species, the common ones being *Polystichum setiferum* and *Asplenium scolopendrium,* along with *Dryopteris austriaca, D. filix-mas* and *D. pseudomas.* Large-growing *Polypodium interjectum* was frequent, *Athyrium filix-femina* was seen in a few places but was rare, and a few plants of *P. aculeatum* and *Oreopteris limbosperma* were noted.

Leaving the Exe valley we passed through Stoodleigh and north to Oakford, stopping in the deep wooded ravine of the Iron Mill Stream where we found the ferns similar to those seen earlier except that *A. trichomanes* was present but *P. setiferum* completely absent; on the higher ground *Blechnum spicant* was large-growing and abundant. In the afternoon we decided to work across country towards Wellington and our first stop was in some ironstone quarries near Bampton which looked interesting but proved otherwise, only eight of the commoner species, none of them abundant, being seen. Further east at Ashbrittle the stone walls supported a good fern population and were well covered with *A. adiantum-nigrum, A. ruta-muraria, A. trichomanes* and that always fascinating little fern, *A. ceterach.* It was a glimpse of the last-named fern as we passed through the village which made us stop — we always do when we see *A. ceterach!* It was growing extensively on the walls but very dried up. Continuing on our way the road ran through a deep cutting in the sandstone rock at Nynehead and ferns were growing in profusion.

Although only eight species were noted, and none of them rare, the place was one in which to linger, if only because of the wealth of young fern growth from prothalli upwards, on the damp sandstone walls. *A. scolopendrium* and *P. setiferum* were the common ferns with *Polypodium interjectum* draping the higher places. Our final objective for the day was a well-known naturalists' bookshop at Hillfarrance which opens on Sundays, in the hope of getting some fern books. Alas! our journey was in vain for only a short time before our arrival the proprietor had decided to shut shop and left by car.

On Monday we spent the day in the Brendon Hills, an area of high hills to the north in Somerset with deep wooded valleys rich in ferns. We started hunting at the small village of Kingsbridge to follow up some of our old records for forked *A. trichomanes* in the hope that some cristate plants might be found but the colony persisted in retaining only its bifid and trifid characters. In the West Country large colonies of this minor variety can occasionally be found but it is rare to find a crested variety among the forked specimens. Walking along the road to Luxborough, there was an abundance of spleenworts in the walls and *A. filix-femina, B. spicant, D. austriaca, D. pseudomas* and *P. interjectum* growing on the roadside banks. The common fern was *A. scolopendrium* and further on, the lane was full of *P. setiferum*; it was hunted carefully — but in vain — for varieties. In Druid's Combe we visited a colony of *D. aemula* which we have known for many years and I was very pleased to see that it has increased greatly in numbers since my last visit some years ago. As in the past *A. filix-femina* and *A. scolopendrium* continue to clothe the slopes in the Combe. A good lacerated marginate "scollie" was found on a bridge further along.

At Roadwater we turned south on a very narrow steep lane leading to Woodadvent Farm. Many years ago in this lane I found a very good *P. setiferum* 'Acutilobum', and in the hope of repeating this find we hunted all the lanes in the vicinity. One particularly good one leading up a steep hill from the farm towards Chidgley had all other plant life literally crowded out with the profusion of *P. setiferum*, growing very strongly, most of the plants being tripinnate and subtripinnate. Our hopes of finding a really good variety here were not fulfilled but we did find three worth collecting, a cristulate one with tiny crests on the pinnae, a strong bifidum and an interesting falcate one with the lower pinnules long narrow and curved, rather suggestive of the variety 'Pulcherrimum' but without the deep incisions which distinguish the pinnules of that magnificent variety.

The Brendons have many "Polystichum lanes" and another day, Thursday, was spent there. Many years ago with my old friend Percy Greenfield, we visited one of the Brendon valleys which seems shut off from the outer world with the hamlet of Leighland Chapel in the middle of it. We were unable to spend much time there but it offered excellent polystichum hunting and this year I redeemed the promise I made to myself that I would return. Accordingly on the Thursday I returned. On the way near Treborough we made a stop at some very extensive and deep quarries cut into the wooded hillside, now used as a refuse dump for all manner of rubbish from household garbage to old cars. The ferns did not seem to find the place unpleasant and we found ten species, lady ferns, aspleniums, male ferns and polypodies, but the dominant one was *A. scolopendrium*, and one sheltered wooded "alcove" shut off from the quarries proper was literally a fern paradise full of huge clumps of magnificent plants with large shining fronds. No *P. setiferum* was found here but it gradually increased in numbers towards Roadwater until we turned off south into the round valley about two miles in diameter, closed in by the hills. The narrow road leading to Leighland Chapel was hunted along its length to the hamlet in spite of persistent rain. There was the usual small number of species already seen in the surrounding country, but *P. setiferum* was everywhere and this was the fern we wanted to see, still searching hopefully for good varieties. No doubt there are some growing there but we did not see them. In places there was abundant *A. scolopendrium*, also *P. interjectum* thatching the tops of the high banks.

Our road was the only easy one into the area – a fact we proved conclusively when we endeavoured after passing through Leighland Chapel to follow a lane leading east towards Chidgley. After getting hopelessly lost in a network of narrow tracks, almost impassable for cars, we eventually succeeded but more by good luck than judgment. It is obvious that this end of the valley to the south and east of Leighland Chapel can only be explored on foot. We dared not stop to look but what we saw from the cars made it a most desirable hunting area, and so once again I made a promise to return but next time on foot from Chidgley. After lunch at Roadwater still another road into the valley was tried as a short-cut to Chidgley but it became so rough that we had to retire; it was an open lane and ferns were very few and of little interest.

We were now not far from the Quantock Hills where in 1962 in a lane between Crowcombe and Triscombe Percy Greenfield found a plant of *Asplenium trichomanes* 'Incisum' which is considered to be one of the best wild finds of this variety. Half of it was given to me but I did not succeed in keeping it for very long. Greenfield's part flourished in his Surrey garden, but afraid that it would eventually be lost he and I decided that it should be sent to Reg Kaye who still has it in his nursery, now increased to three plants. We decided to visit the area again this year to see if any more plants of the variety had grown during the intervening twelve years. I have a good mental picture of the spot where it was found but everything seemed changed – not surprising after twelve years! I think we did find the wall but vigorous growing weeds now almost cover it, choking out the ferns. However, we were as usual working against time and a more leisurely hunt in the lanes might produce better results. We found *P. setiferum* to be very abundant along the lanes in the area and this too should be looked at more carefully. Other species included plentiful *A. scolopendrium* and four spleenworts, *A. adiantum-nigrum, A. ruta-muraria, A. trichomanes* and *A. ceterach.*

A wet day on Tuesday provided a good excuse for not straying far from Tiverton and to hunt some of the ground to the east of the Exe as far as Bampton, to which little attention had been given in the past. At Chettiscombe we looked round the village walls and found the three common spleenworts along with *A. scolopendrium* and some *P. interjectum.* South of Hone Hill a large area of woodland on a steep slope had been cut in the last year or two and in the cleared ground ferns were growing very prolifically to a large size. The dominant ones were *P. setiferum* on the slopes and lower down *P. aculeatum* along the banks of a stream. The latter was remarkable for its size and the fact that none of the plants seemed quite normal but inclined towards the hybrid *bicknellii.* Much of the *setiferum* was more divided than normal and we had hopes of finding a good variety but we could not possibly search the whole area thoroughly – and by this time the rain was falling steadily! *A. scolopendrium* was also abundant and a crested form was found. The terrain was obviously good fern country and all the ten species seen were growing strongly. Near the stream was *A. filix-femina*, very large and plumose, accompanied by *D. filix-mas, D. pseudomas* and *D. austriaca*, all vying in size with the magnificent *P. aculeatum.*

Several years ago at Firebeacon I found two plants of *P. setiferum* 'Percristatum' and we searched the lane in the hope that more had grown in the interim. We found only a *setiferum* with divided pinnules which may or may not prove worthy of cultivation. Near Bampton at a cross-roads called Ford seven lanes radiate. One of them, a narrow overgrown and sunken track leads steeply up a hillside and was full of ferns, growing profusely. *P. aculeatum* abounded, also very large-growing *A. scolopendrium* and *A. filix-femina* while huge colonies of *P. interjectum* grew along the tops of the banks. In all, eleven species were seen but only very few plants of *P. setiferum.* The other lanes provided poor hunting except that in one *P. aculeatum* grew in great quantity. By this time the rain which had eased for a while began to fall heavily and we were glad to call it a day and return to the comfort of our hotel.

Wednesday was dry and we wandered further afield again up to Simonsbath, drawn thither by the *Phegopteris connectilis* and *Cryptogramma crispa* colonies growing in Somerset. From Dulverton we followed the River Barle up its deep wooded valley to March where we recorded eleven of the more common species, chief among them the lady and the male ferns with the occasional *setiferum* and *scolopendrium.* Similar ferns grew along the steep road leading down from Comer's Cross to Withypool, with additionally *Oreopteris limbosperma;* the lady fern was very abundant but there was a complete absence of *setiferum.* On the bridge in Withypool grew *A. ruta-muraria* and *A. trichomanes.* One of the very rare ferns in the West Country is *P. connectilis* and it was pleasing to visit one of its two stations and see it still growing happily there. Another very rare fern for this part of the country is *Cryptogramma crispa* and a pilgrimage was made to see it growing in a wild spot where a colony of only five plants is known to us. Not very far from it on an old ruined building grows *Cystopteris fragilis* which is not common in the area and this was the only time we saw it during the week.

Our last day, Friday, we spent in the undulating lanes to the south and west of our centre. On the long stretch of Newie's Hill twelve species were seen but the hunting was poor and the only records of note were the abundance of *D. pseudomas* and in only one place *A. adiantum-nigrum*; there was some *P. aculeatum* in places but very little *setiferum.* Near Bickleigh we found the last-named fern in quantity again and one narrow track was very interesting but none of the variation was outside the normal range. Other species seen numbered eight only, all the more common ones. Further on at Cadeleigh numbers were still poor but we noted one plant of *A. ceterach* in a wall. North of Little Silver we discovered a lane full of *P. setiferum*, which proved to be nearly as exciting as the one we hunted on the Monday near Woodadvent Farm. The fern seemed to be doing its utmost to develop beyond the normal extremes but could not quite make it and after slowly searching the lane with the closest scrutiny we reluctantly had to give up, convinced that there was nothing good to be found. It was the last hunt on our last day and from there we travelled to Witheridge to end the week with a visit to Kenneth and Dolsheen Adlam to see their garden and enjoy a much appreciated tea.

We are sorry that more members did not come to this meeting held in a most delightful part of the country. It was by no means a strenuous week, for the most time spent strolling slowly down the lovely ferny lanes. Admittedly the West Country does not offer the same number of exciting species seen in more mountainous districts but we recorded twenty fern species and two equisetums. On walls *A. adiantum-nigrum, A. ruta-muraria* and *A. trichomanes* were found with at times *A. ceterach.* The dryopteris species *D. austriaca, D. filix-mas* and *D. pseudomas, B. spicant* and *A. filix-femina* were abundant in most places, as well as *P. interjectum* and *P. vulgare* on banks and walls, *O. limbosperma* was scattered and not too common, and we saw only one colony of each of the following, *D. aemula, C. fragilis, C. crispa* and *P.connectilis.* Of course, *Pteridium aquilinum* was widespread, and the common ferns of the area were *A. scolopendrium* in woods, roadside banks and on walls, and *P. setiferum* which is THE fern of the West Country. More scattered but turning up in most places *P. aculeatum* was a bit more difficult to find. The equisetums seen were *E. arvense* and *E. fluviatile.* As fern growers we were disappointed not to find any really good varieties but pleased to be able to take back with us a few of minor interest.

Sedbergh, Yorkshire — 7/14 September. On a day of heavy rain and gale-force winds, our party, the largest of the year, foregathered at our centre, the Bull Hotel at Sedbergh. During the week 18 members attended for all or part of the time and it was most gratifying to see such a good turnout. Marjorie Castellan, Charles Catlin, Jimmy Dyce, Fred Jackson, Margaret Kingston, James and Margaret Merryweather, Martin and Hazel Rickard and Francis and Barbara Tingey were there for the whole week and for odd days or part of the week we were joined by John Barnett, Graham Fairweather and his fiancee Janet, Bob Finch, Bob Trippitt and Tony and Barbara Worland. Our leaders were Fred Jackson and James Merryweather.

On Sunday we travelled north through Ravensdale to Orton Scar a few miles beyond Orton. Above the Scar was a very loose and broken limestone pavement on which we spent the morning, finding the deep narrow crevices or grikes full of ferns, chiefly *Asplenium viride* and *Cystopteris fragilis* in great abundance. We recorded 13 species including the fern ally *Selaginella selaginoides* which we found to be quite common in many of the places we visited during the week. We did not see much *Dryopteris villarii* or *Gymnocarpium robertianum* in which should have been a good habitat for them but *A. scolopendrium* and *Polystichum aculeatum* were common. Other spleenworts were *A. ruta-muraria* and *A. trichomanes* and we also noted *Athyrium filix-femina, D. austriaca, D. filix-mas* and *D. pseudomas.*

In the afternoon we returned south again nearer home to Cautley Spout which we had visited in 1972 during the weekend meeting held at Dent in the Sedbergh area. Cautley Spout is a series of high waterfalls cascading down a deep ravine cut into the side of the hills a few miles north-east of our centre and from the road there is a walk over the moor of more than a mile before climbing up to the Spout which is very impressive. The steep gill, difficult to get through on this occasion because of the volume of water in the beck, is full of ferns and during our two visits we recorded 24 species which includes allies. Conditions for scrambling up the gill were much better during our previous visit so that this time we did not see all the ferns which grow in its deeper recesses, ideal habitats for *A. adiantum-nigrum, A. ruta-muraria, A. viride, A. trichomanes, C. fragilis* and *P. aculeatum.* There are some colonies of the filmy fern *Hymenophyllum wilsonii* also *G. dryopteris* and *Phegopteris connectilis*, while the bigger ferns *A. filix-femina, D. abbreviata, D. austriaca, D. filix-mas, D. pseudomas* and the hybrid *D. X tavelii* are all there, as well as *Polypodium vulgare.* On the more open ground higher up we noted *Blechnum spicant, Oreopteris limbosperma* and *Pteridium aquilinum*, and on the screes on either side of the Spout *Cryptogramma crispa* was in abundance, growing in large clumps. Also seen were *Lycopodium clavatum, L. selago, S. selaginoides* and lower down on the wet ground *Equisetum palustre.*

On Monday we were again in the country north of our centre, travelling up through Kirkby Stephen and beyond Brough to Hillbeck to explore the deep wooded valley of Swindale Beck. In steady rain we plodded down the wet slopes to the beck in quest of the horsetail *E. hyemale* and following up an old record for *E. pratense.* Two of our party struggled across the flooded beck to reach the former which grew on the far bank but we were unable to find any trace of *E. pratense.* Higher up the slopes on the way back we saw a flourishing colony of *E. sylvaticum*, and near it a very large and fine drift of *P. connectilis.* One other horsetail *E. arvense* was seen. Ferns were growing abundantly on the wooded slopes and we recorded *A. filix-femina, B. spicant, D. austriaca, D. filix-mas, D. pseudomas* with, on the more open ground, *P. aquilinum.* In the rock banks of the beck we found *A. trichomanes, C. fragilis, P. interjectum* and quite abundant *P. aculeatum.* On the higher more open ground some *O. limbosperma* was noted. Some of the party clambered up to the screes on Hillbeck Low Fell and recorded the usual limestone species there. In the extensive quarries where we parked the cars ferns were common but of only a few species, *A. trichomanes, A. filix-femina, D. filix-mas* and *D. pseudomas.* The two male ferns were prolific everywhere among the loose stone and debris in the disused parts.

In the afternoon we retraced our steps to Stennerskeugh Clouds, a few miles south of Ravenstonedale. During the visit to the area two years ago we hunted the neighbouring hill Fell End Clouds and noted 12 fern species; the same ferns were all found again this time with the addition of *S. selaginoides.* Both the Clouds are low hills of some 1500 feet, an easy climb from the road up broken scars to the limestone pavements on the tops, providing excellent and interesting hunting. The most common fern was again *A. viride,* growing in all the rock crevices and in the grikes, and it was accompanied by *A. ruta-muraria, A. trichomanes* and *C. fragilis.* There was also an abundance of *A. scolopendrium,* growing happily in one of its favourite types of habitat. One crested specimen was found in a deep grike which necessitated the removal of a number of large rocks before we finally succeeded in collecting it. The only other common fern was *P. aculeatum,* and we expected to see *D. villarii* and *G. robertianum* also in quantity but only in one place were several large and flourishing colonies of the latter seen and one small patch of the former. There was some *A. filix-femina* and a few plants of *D. filix-mas* and *D. pseudomas* and it was interesting to discover one solitary plant of *P. setiferum* seemingly quite happy in this non-typical habitat.

Still ranging far afield on Tuesday we visited the Grange-over-Sands area on the River Kent Estuary. In one place along this coast line *Adiantum capillus-veneris* grows in what must be its most northerly station; we were very pleased to find it flourishing and very much at home, and even extending its range along the rocks. In the same place *A. marinum* was also seen but not very many other ferns. An old quarry nearby was the habitat of huge clumps of very large-growing *A. trichomanes* and *A. ruta-muraria*, also a few plants of *A. ceterach.* At Lindale, just north of Grange, old walls along the streets and in the churchyard were searched and on them were *A. ruta-muraria, A. trichomanes, A. scolopendrium* and *P. interjectum,* while in the churchyard *C. fragilis* was very abundant.

One of the founder members of our Society in 1891 was Joseph Wiper who lived in Kendal, and although the family moved to Vancouver in Canada in 1911 the garden of his old home is still full of his ferns in spite of it having changed hands many times since then. The present owners have just entered into possession but Mrs Taylor made our party very welcome when we called, by arrangement, on our way back from Grange. The garden is a delightful one, terraced on a fairly steep slope, and contains many good fern varieties, most of them of *Polystichum setiferum*, the dryopteris species and *Athyrium filix-femina.* As is always the case where varieties of the last-named flourish, self-sown sporelings are growing all over the garden, some of them good but many of them otherwise. One of the notable ferns in this garden is a crested form of *Pteridium aquilinum*, possibly the best in existence, a 'Percristatum' fully cristate in all its parts. Established in the garden by the Wipers it is, like the wild species, strong-growing and vigorous and has become an invasive nuisance. It is so beautiful, however, that its faults must be forgiven and the fronds can always be easily pulled up in the places where they are not wanted. Some years ago I acquired some rhizomes of the fern from the then owner but they did not survive the move. Discussing this failure with knowledgeable fern growers later, we decided that the only time to move it with any degree of success would be in the early spring when life was beginning to stir in the dormant rhizomes. The best way to propagate it is possibly from spores and some were collected by John Barnett so we hope he has some success in raising some plants like the parent. It is fortunate that all the owners of this garden have had some interest in its fern population and have looked after the plants, even to the extent of distributing some to other fern lovers. We are glad to add that the present new owners are no exception; Mrs Taylor was interested in all we had to tell her about the plants and we had a warm invitation to return again when we are in the area.
(See British Fern Gazette Vol 9 page 297, *A visit to Ferndene, Kendal*, by R Kaye)

From Kendal we moved on to Sizergh Castle a few miles to the south, belonging to the National Trust. There is a large collection of good fern varieties scattered throughout the Castle gardens and fortunately, the head gardener, Malcolm Hutcheson, is very interested in them and took pleasure in showing us round and introducing us to many very fine plants of several species. The gardens were very much overgrown before the National Trust took them over several years ago and more good ferns are still coming to light as the process of clearing up and cutting back of overgrown shrubs continues. There are many very fine polystichums and, of course, athyriums, and there is a very good selection of varieties from the dryopteris species, as well as scolopendriums and the finer polypodies.

On Wednesday we remained nearer home and travelled north up the Lune valley from Sedbergh to Carlin Gill about 5 miles away. Our main interest was in the deep ravine called Black Force which rises steeply from the Gill up the slopes of Fell Head. It is a very enclosed place with precipitous rocky sides and down it rushes a vigorous stream in a series of cascades and waterfalls. It is the home of a large number of ferns, growing in ideal conditions and we recorded 13 species and 1 ally, some of them very abundant and others very scarce. One good plant only of *P. setiferum* was seen and it looked so much at home that we could have expected to see more, and there very probably are more hidden away in unapproachable corners. The common fern, as in some other places visited, was *A. viride,* its sheltered habitat inducing very lush growth, and there was plenty of *A. trichomanes, C. fragilis, P. aculeatum* and *H. wilsonii.* We noted *D. abbreviata* frequently on the more open rocks along with the occasional plant of *L. selago,* and there was some *A. filix-femina, D. austriaca, D. pseudomas, B. spicant, P. vulgare* and *C. crispa.* Fortunately the beck was not too full as the day was dry and we were able to clamber up it fairly easily. It was not so on Friday when we glimpsed its greatly increased volume of water from the motorway, two miles distant, on a day of persistent pouring rain. Along Carlin Gill on our way to and from Black Force, the ferns were very similar to those already listed but additionally we saw *D. filix-mas, O. limbosperma, P. connectilis, P. aquilinum* and the allies *S. selaginoides* and *E. arvense.*

On the return journey at Chapel Beck which is heavily wooded the 14 species seen were again similar to those in Black Force, with the addition of *A. ruta-muraria* growing on the bridge by the road, and *G. dryopteris.* Extensive drifts of *P. connectilis* were admired. On a stretch of roadside bank between Fairmile Beck and Chapel Beck, very large-growing *D. abbreviata* was a conspicuous fern.

In a morning of rain on Thursday we drove through Dentdale and on our way penetrated down Deepdale as far as Gastock Beck Bottom where we were able to admire the waterfall in full flood. The ferns seen were the same ones noted during our 1972 visit to this spot; *A. trichomanes, C. fragilis, A. scolopendrium, P. vulgare* and *P. aculeatum* grow on the rocks around the waterfall and nearby, *A. filix-femina, D. austriaca, D. filix-mas* and *D. pseudomas* are common in the open places, along with *E. arvense* and *O. limbosperma.* In brighter weather we moved on to Newby Head Moss and down to Ribblehead to once again visit the railway cutting which some of our party had not previously seen. No additional ferns or allies were recorded. On the higher ground, Colt Park Wood was explored. This is an area of limestone pavement overgrown by trees which reduces the ferns to the more common ones of humid places. Only 10 were noted, *A. ruta-muraria, A. trichomanes, A. scolopendrium, A. filix-femina, C. fragilis, D. austriaca, D. filix-mas, P. vulgare, P. aculeatum* and *P. aquilinum.* The wood was not extensively searched as the overgrown terrain with hidden crevices in the pavement made it dangerous for walking. In the afternoon some members climbed up Moughton Fell from Horton-in-Ribblesdale in search of *P. lonchitis* which grows there in the grikes. They did not find it but recorded 12 species all listed on previous visits, which included all the common limestone species found in such habitats.

Friday was a day of rain which discouraged everyone, but later in the morning two of our more active members set off to explore Combe Scar on the south side of Dentdale and reported the finding of 19 species, among them *A. adiantum-nigrum, A. trichomanes, A. viride, C. fragilis, P. aculeatum* and *P. connectilis*. The most abundant ferns were *C. crispa, G. dryopteris* and *H. wilsonii.* The rest of the party stuck to the cars and made a foray down Dentdale and up over the mountain road in thick mist from Dent Station to Garsdale. On the return journey down Garsdale a brief stop was made to hunt along the bank of the river during a short lull in the rain and 7 ferns were seen, all of them the more common ones from such habitats. In the afternoon ferns were forsaken for books, and we visited Kendal and Appleby only to find that the bookshop in the former place was closed and the one in Appleby now non-existent!

For the record, 27 ferns and 5 allies were recorded during the week. Most of them were on the limestone scars and pavements and were *A. adiantum-nigrum, A. ruta-muraria, A. trichomanes, A. viride, A. scolopendrium, C. fragilis, D. villarii, G. robertianum, P. aculeatum* and *P. setiferum*. It was very noticeable how common *A. viride* was in these habitats, while *A. adiantum-nigrum* and *P. setiferum* were very scarce, and we did not see a large amount of *D. villarii* and *G. robertianum.* On the limestone and off it, common ferns were *A. filix-femina, D. austriaca, D. filix-mas, D. pseudomas, P. interjectum* and *P. vulgare*, and on open hillsides *O. limbosperma* and *B. spicant* were frequent along with, at times, abundant *P. aquilinum.* The larger ferns also grew in the ravines, along with *G. dryopteris, H. wilsonii, P. connectilis* and in a few places *D. abbreviata.* On the screes in a few places we remarked an abundance of *C. crispa* and on hillsides some *L. clavatum* and *L. selago.* In one place on the coast *A. capillus-veneris* and *A. marinum* were seen, and only once was *A. ceterach* recorded. The horsetails *E. arvense* and *E. palustre* were occasionally seen but *S. selaginoides* was quite common. Only one fern variety *A. scolopendrium* 'Cristatum' was found.

A CODE OF SAFETY FOR SOCIETY EXCURSIONS

J W and M E Merryweather

The 1974 AGM discussed the question of safety on fern hunting excursions. It was decided that a code of conduct should be put to members, suggesting ways in which they might protect themselves and their friends from injury or worse which could well befall them on any ferning trip — accidents have already happened.

The main danger areas are mountainous. We regularly find ourselves in bleak, upland places bestrewn with treacherous rock and prone to sudden changes of climate. Here, protection for feet and ankles in the form of stout, well-fitting boots with high sides (in order to hold ankles firmly) are essential along with adequate protection against exposure. The latter can take many forms. The authors are keen on carrying very light and compact water-proofed nylon Kagoul (a long, non-zip anorak) and over-trousers which can render the wearer completely water-proof (and quite wind-proof) from head to boot! These can easily be carried at all times whatever the weather with no effort. Non-waterproof clothing should be of wool which provides fine insulation even when wet. Jeans are not a very suitable form of trousers, being of cotton — the authors might do well to note this! However, any other fully water-proof clothing with wool beneath is excellent — just heavier to lug about, and stout shoes or wellingtons are better than everyday footwear.

We would like to point out that wearers of plimsolls and other light footwear or of just shower-proof clothing on mountains are a liability to themselves and to their colleagues if they do get into trouble.

If a person does become injured or is clinging from a rock-face unable to get up or down he needs help. If he has wandered off alone it will not be available. For this reason people must work in pairs or groups and at all times must be in contact with one another. A mere knowledge that your colleague is somewhere above you is not good enough, for this presumption is nearly always erroneous.

It is suggested that all members of a fern-hunting trip carry a very powerful whistle which will be available in an emergency — voices do not carry very far in big mountain valleys and are completely lost in the sound of rushing water in deep rocky ravines. A simple code of whistle messages could be devised though this could lead to unnecessary complications of a simple means of expressing emergency. Along with a whistle a small pocket compass and a local Ordnance Survey map are easily carried. Without these, however, if you are lost up a mountain, as a fernist you probably followed a stream up — follow it down. If you have lost your colleagues and think they are close, head down hill. You can see them from there, but not from above.

A further suggestion is that a party should always carry a compact first-aid kit and a survival bag (a polythene bag with a metallic coating in which an injured person can be kept dry and warm until help arrives). This would require organisation and a few willing volunteers. Some discussion of this should take place.

Advice of a more general note, but none the less important, is to learn your own limitations and respect them. It is all too easy, when spurred on by the thought of reaching a rare specimen in some precarious niche, to forget everything except attaining the goal and whilst it is rewarding to look back on such an achievement if successful, there are places that even the youngest and most agile would do well to leave alone.

The authors would be pleased to receive any further suggestions which this article may stimulate.

Unusual domicile for a fern. I have received from our Norwegian member, Johannes Hovland, a photograph taken from the ground of a fern growing out of the brick coping on top of the chimney-stalk of a house in the middle of Bergen, Norway's second largest city. The detail is not sufficiently clear to make a positive identification but from the outlines of the fronds against the sky, it looks remarkably like a polypody, possibly *P. interjectum.* The fern is, comparing it with the size of the bricks from which it is growing, about 10 to 12 inches in height and seems very much at home on its eyrie which presumably at times must be rather warm and smoky.

BRITISH FERN VARIETIES — Various species

J W Dyce

During the past five years I have dealt with the varieties of the five large variety-producing genera in Britain. It now remains for me to tidy up with a review of the other species which produce only very few variations. Collectively, they add quite appreciably to the list of first-rate garden ferns.

Several of the spleenworts have in the past produced varieties which now appear to be non-existent. They were mostly cristate forms and there are old records that *Asplenium adiantum-nigrum, A. ceterach* and *A. marinum* all brought forth these and other deviations from the normal. Probably none of them were of great merit and they seem to have had a fleeting existence; this is also the case with *Cystopteris fragilis* and *Phegopteris connectilis.* Very different is *Oreopteris limbosperma* which in the last century and in the early days of our Society was one of the big producers of good varieties, particularly in the Lake District. Not a single one — to my knowledge — remains today and this fern in the wild always presents an all too constant normal appearance; it does not even have that range of very minor variation which is a common feature in many of our ferns in their native habitats. Another of our native ferns, *Adiantum capillus-veneris* at one time had several good varieties but we never hear of them nowadays.

We are left with a short list of species, among them only two of the spleenworts, *A. trichomanes* and *A. viride.* The latter is a shy producer but good crested forms are occasionally found. It is rarely seen in cultivation, however, and does not seem to be a good doer. The only specimen I know is a superb plant growing in the limestone on the hills above Arncliffe in Yorkshire — it is impossible to remove it from a very narrow deep fissure in the rock, which is probably a good thing. One day some of us hope to visit it when its spores are ripe and then we may be able to reproduce it from them. There have been records of *A. viride* 'Incisum', and in the inter-war years a photograph of a good one found by Percy Greenfield in Switzerland appeared in the Gazette (Vol 6, frontispiece to No 9), but alas! we heard no more of it; it was named 'Plumosum Greenfield'. In this fern and in *A. trichomanes*, the name 'Incisum' is synonymous with 'Plumosum' as this type of variation is recognised as the plumose form of the two species. In *A. trichomanes* we have had several of them and one of the best was found by Greenfield in 1962 in the Quantock Hills in Somerset. It is now well looked after and treasured by Reginald Kaye but has not multiplied sufficiently for distribution. It is sterile like all true plumosums, but one other exists 'Incisum Moule' which in contradiction to the general rule IS fertile and produces progeny true to character. I have a plant of it grown from spores, recently sent to me by our Danish member, Erik Aarestrup. It is a finely divided variety, very neat and dainty. This species is very generous with its crested forms, and quite frequently in parts of the country where *A. trichomanes* is common on walls, whole colonies will be found with bifid and trifid frond apices and the occasional colony also of well crested forms. These can be grown easily from spores and I have several very good cristate plants from my own sowings and from those of other members. Some of them are more than crested with their fronds dividing repeatedly from well down the rachis to give congested ramose forms which look very fine. All these crested varieties of *A. trichomanes* can be grown quickly and easily from spores.

Blechnum spicant is another species rather loath to contribute to our garden riches, but had it been rare its normal form would not have been thought out of place among fern treasures for, when well grown, the rosette of decumbent barren fronds with the upright fertile ones in the centre makes a fine picture. This is another fern which in the past produced varieties now long lost and it refuses to repeat them. Where can we find a 'Plumosum Airey' today? — a superb variety with fully tripinnate fronds, raised from spores and unquestionably the finest variety the species has produced. The fern has much humbler aspirations today and we find the occasional bifid and semi-imbricate specimen, also rather poor 'Serratum'. In Wales some years ago I found quite a good 'Crispatum' with all the pinnae twisted and rather congested. It looks a fine plant but is a slow grower and it has not yet produced fertile fronds. Sometimes other minor variations are seen which make little advance on the normal form. The only really good varieties found these days are 'Cristatum' and 'Ramosum' but they are very rare. The former has only simply divided apices but the latter is divided repeatedly and a very fine one was found in Harris in the Western Isles some years ago.

The oak fern *Gymnocarpium dryopteris* has one variety only, 'Plumosum'. The species itself makes a most acceptable and beautiful garden plant which would appear difficult to improve on, but in 'Plumosum' with its much enlarged pinnae and wide overlapping pinnules it has excelled itself and needs to go no further to achieve perfection. Another fern well qualified to depend on its normal form for acceptance is *Osmunda regalis,* but even so it has generously given us two varieties which are worth-while acquisitions. 'Cristata' does not grow as tall as the species and is thus more suited for the smaller garden. When well grown the pinnules which are twice and three times divided, become more developed and show off the beauty of the plant effectively. The variety 'Crispata' with twisted and crimped pinnules has all the charm which this type of variation can confer successfully.

I finish with the very ordinary and much-abused bracken *Pteridium aquilinum* which, surprisingly, is capable of producing varieties of great beauty and, even if they do have the invasiveness of the species, fronds which pop up in the wrong place can easily be pulled up. In most places where bracken grows, stands with crisped pinnules will be noted. When this crisping is extreme and combined with cresting of all the pinnae, something spectacular is evolved and this was the sight which confronted Druery near Pitlochry sometime about the beginning of this century when he found one large single frond of this variety. Obviously, the plant could not be collected and as it was barren and could not be reproduced from spores, the frond was the only record of what must be the best bracken variety ever seen. An excellent 'Cristatum' was established by Joseph Wiper in his Kendal garden in the early days of our Society and is still there, very much at home. We are attempting to grow it from its spores as it is extremely difficult to transplant rhizomes of this fern successfully.

This concludes my series of articles on the varieties of the British ferns. I do not claim that it is an exhaustive review of the subject as I have been concerned only with bringing before beginners some elementary knowledge of the possibilities open to them in the collecting and growing of these beautiful plants. To that extent I hope my writings have proved helpful.

FERNS OF CUMBRAE

Fred Jackson

The Isle of Cumbrae is only a small island in the Firth of Clyde but is a very pleasant place, not far from the mainland with Largs as the nearest town. The island consists of the town of Millport and a number of scattered farms and dwelling houses. In the middle of the town stands the Garrison House, built by Commander James Crawford about 1746 and now the Town Hall. It stands above the street with steps leading to it, and the retaining wall of sandstone contains a good number of the most luxuriant specimens of *Asplenium adiantum-nigrum* I have ever seen.

On the sandstone rocks are many more of these ferns, and on the more exposed sites a fair number of *A. marinum* which are very small, but some I have seen in the deep crevices in the cliffs have fronds up to nine inches in length. I once found a very nice imbricate form which I collected and potted up and it grew very well for some time then very gradually died off, no doubt in protest at being brought so far away from its natural habitat. In one wood where the soil is composed of sandstone detritus are many hundreds of *Polystichum setiferum*, the finest colony I have so far seen, and there is one form which differs greatly from the type, with very thin stipes almost as long as the blade, very thin in texture and lighter in colour; the fronds are just over twelve inches in length and are quite sterile. I collected a plant of this form about ten years ago and it has remained constant ever since. This year I collected another very dwarf plant with very finely cut pinnules and if this remains constant it will be a worth-while acquisition.

The most prolific fern is *Dryopteris austriaca* and in some of the very sheltered woods the fronds reach a length of four to five feet and broad in proportion. I searched every likely place for *D. aemula* but had no luck, then I found one plant in a most unlikely place about three yards back from the road on an exposed grassy bank. I had expected to find a good number of this fern as this island is no real great distance from Arran where in very many places it is the dominant fern. *D. filix-mas* and *D. pseudomas* are fairly common, *A. ruta-muraria, A. trichomanes* and *A. scolopendrium* all occur but sparingly, and there is of course a fair amount of *Pteridium aquilinum,* also of *Polypodium vulgare. Athyrium filix-femina* is more or less scattered all over the island and *Blechnum spicant* occurs on some of the wooded banks but so far I have only found one small colony of *Cystopteris fragilis.* Apart from the two plants of *P. setiferum* and the one of *A. marinum* mentioned, I have found no other varieties.

GUERNSEY SPECIAL ISSUE OF FERN STAMPS

The Guernsey Philatelic Bureau is issuing on 7 January 1975 a set of four special stamps depicting four of the Guernsey ferns, *Asplenium X microdon, A. X sarniense, Isoetes histrix* and *Ophioglossum lusitanicum.* All of them are extremely rare and the last two are also very small – indeed the Ophioglossum is so tiny that it can only be found with the greatest difficulty. We were very fortunate in being taken to see all four during our meeting in Guernsey in the spring of 1971. The two asplenium hybrids are known to grow only on Guernsey and less than a dozen plants of *microdon,* a hybrid between *A. billotii* and *A. scolopendrium,* are known. The distribution of *sarniense* on the Island is more widespread, and this was a fern new to science, a cross between

A. adiantum-nigrum and *A. billotii,* found during our visit by one of our party, Dr Anne Sleep from Leeds University. The explanatory text to be sent out with the first-day covers posted from the Philatelic Bureau mentions the name of our Society.

Anne Sleep has suggested that it would be a good idea for the Society to make a bulk purchase of the covers with the four stamps affixed, addressed to the Society, for resale to members at a small profit for our funds. Unfortunately, by the time this Bulletin is in the hands of members there will not be much time left for action by us and **I shall be grateful if all interested members will notify me immediately** so that we can have some guidance on the number of covers to purchase. The stamp values are 3½p, 4p, 8p and 10p, and the total cost of first-day covers to the Society will be 38p each.

MY WARDIAN CASE

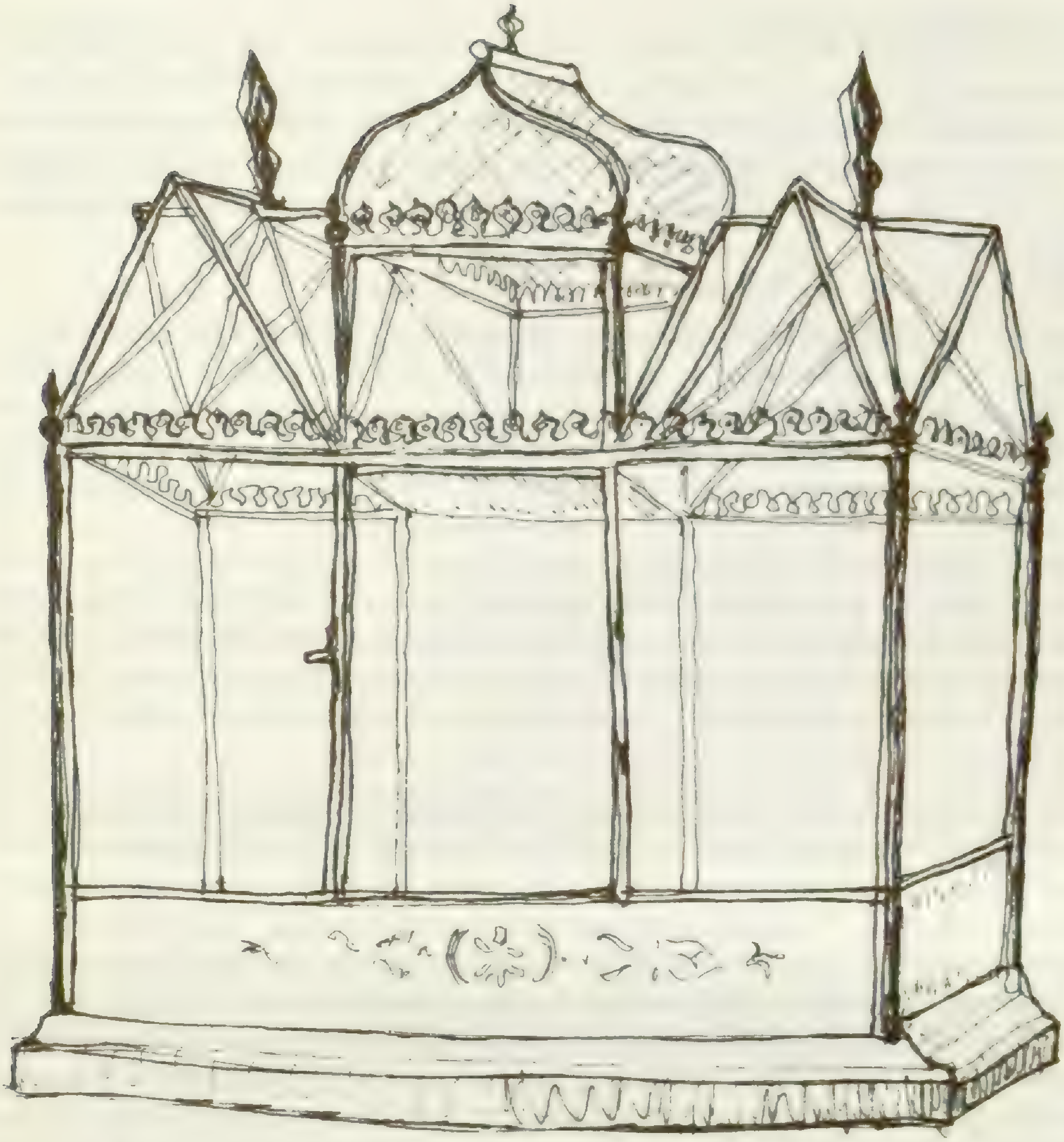
Alison W Rutherford

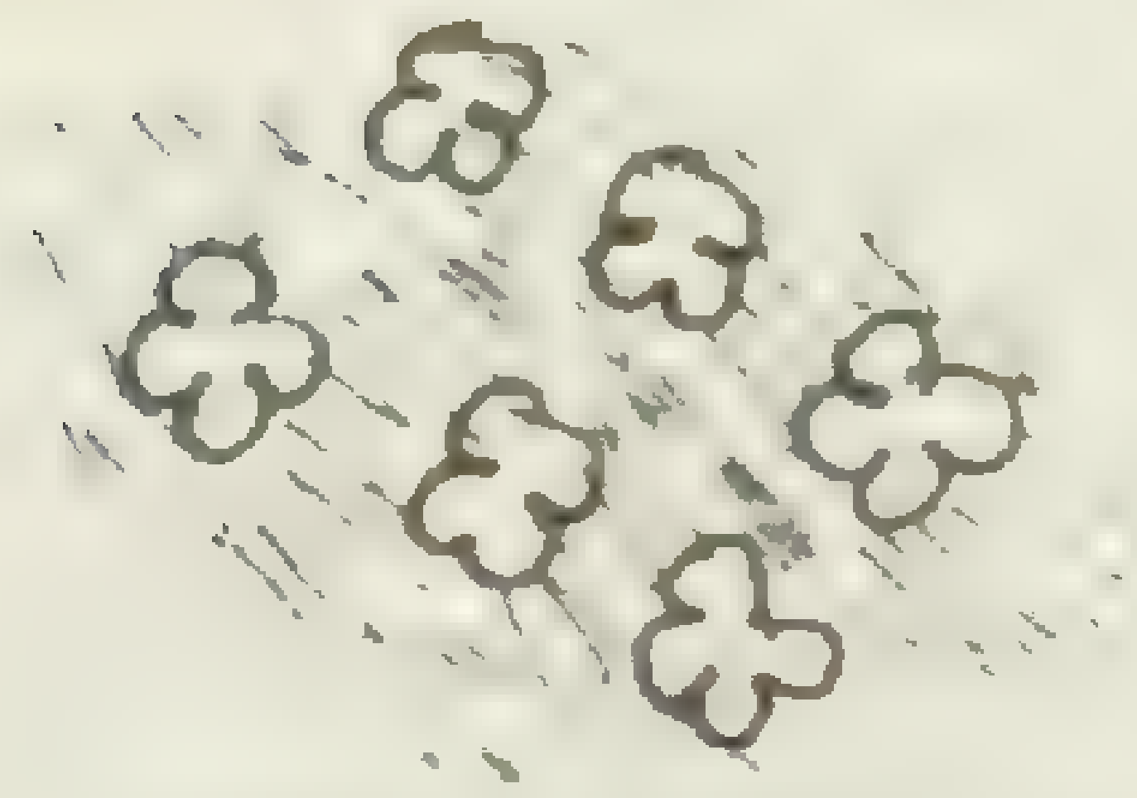
It was quite by chance that I became the proud owner of a Wardian Case. A visiting antiques dealer, seeing my handlight, remarked that he knew where there was another of them with a domed roof and a great deal fancier. Delighted, I jumped on the first bus passing the shop and bought it, still hardly believing my good fortune.

In style it might be called a crystal villa. The base is 30 by 16½ inches, from base to the beginning of the roof is 19 inches and the roof a further 9 inches except for the centre part which is a vivarium 3 inches higher. This is shaped like the onion tower of a Russian Church, but flat-sided and elongated to run from front to back, and is of pierced zinc, the holes four-leaf clover shaped giving it a mosque-like air; the walls are fixed glass panes. It is cruelly small for an animal – has anyone got a china frog or toad they're not using?! The frame is all in zinc, except for the roof ridge and handle of the vivarium, the hinge and catch of the front door, which are brass, and strengtheners of what look like thick fencing wire are welded along the base of the vivarium and upper storey which lifts off.

The 4 inch deep zinc earthbox has a wooden base and is ornamented with a transfer (?) pattern in gold, of fleurs-de-lis, acanthus shoots and a centre circle of flowers. The front of the lower storey is divided into three by flat astragals about ½ inch across. The centre panel is the front door. Above is a row of pierced zinc crenellations, a clever idea which not only adds to the mini-greenhouse look but is a practical way of keeping the upstairs in place. The roof of the vivarium lifts off, while the frame and floor are in one piece. On either side of it the bottom storey ascends into the gables to allow taller plants to be grown and hooks have been put in the centre of the ceiling on each side, presumably to take hanging coconut baskets. The gables themselves are double, running into each other at right angles, producing a slightly dizzying effect with twelve panes apiece. If this sounds a bit confusing, imagine looking at the case from the front and seeing the gable facing you, but if viewed from the side another gable faces you; where they meet at the ridges there are four-sided waisted 4 inch high handles. At each corner of both the downstairs and the reptile house are round zinc columns topped with turned-wood ball and spike pinnacles. The only part to have suffered from the ravages of time is an oak duckboard fitting into the base, which has lost so much substance that it is like cork and is of historic interest only.

(See Illustration)





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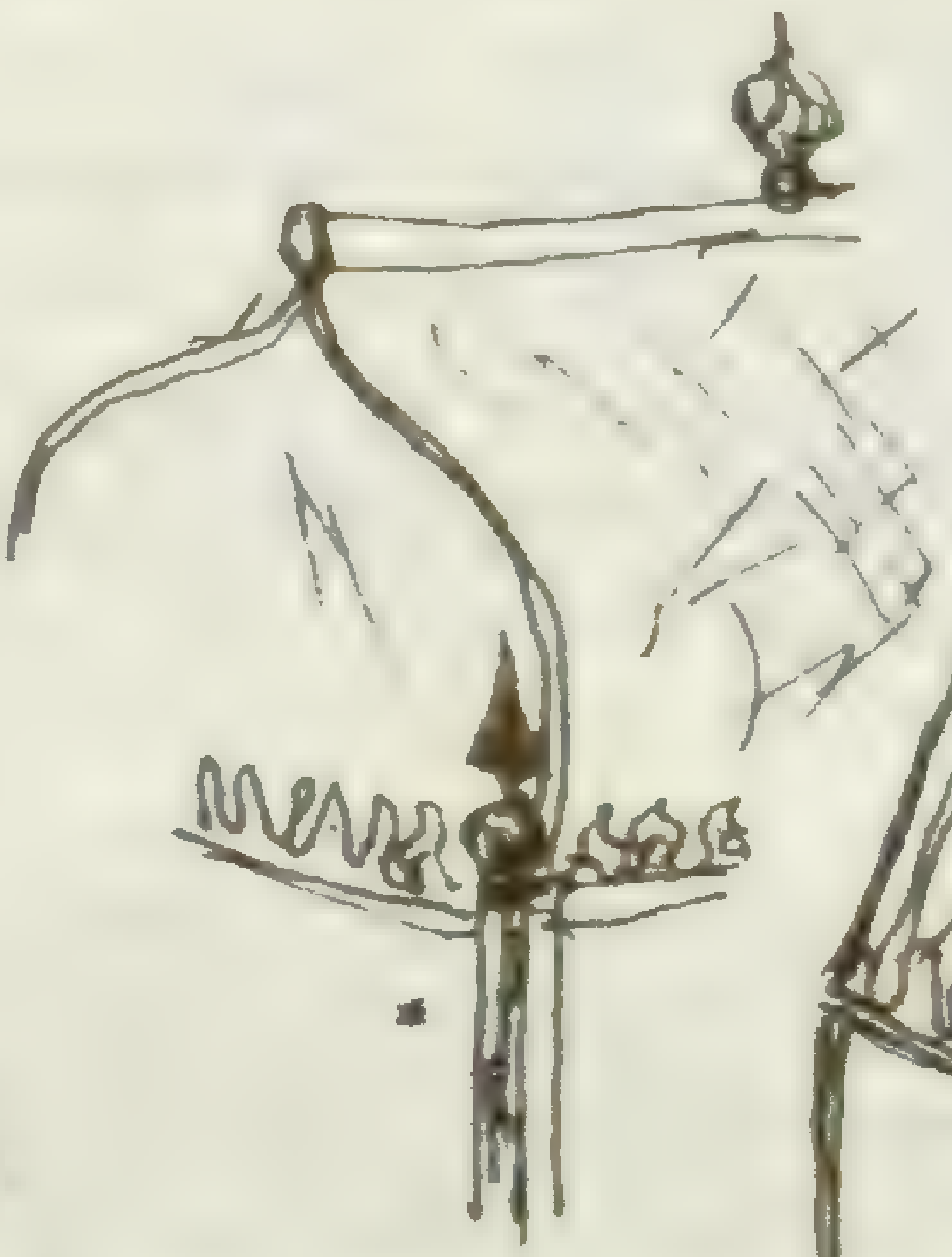

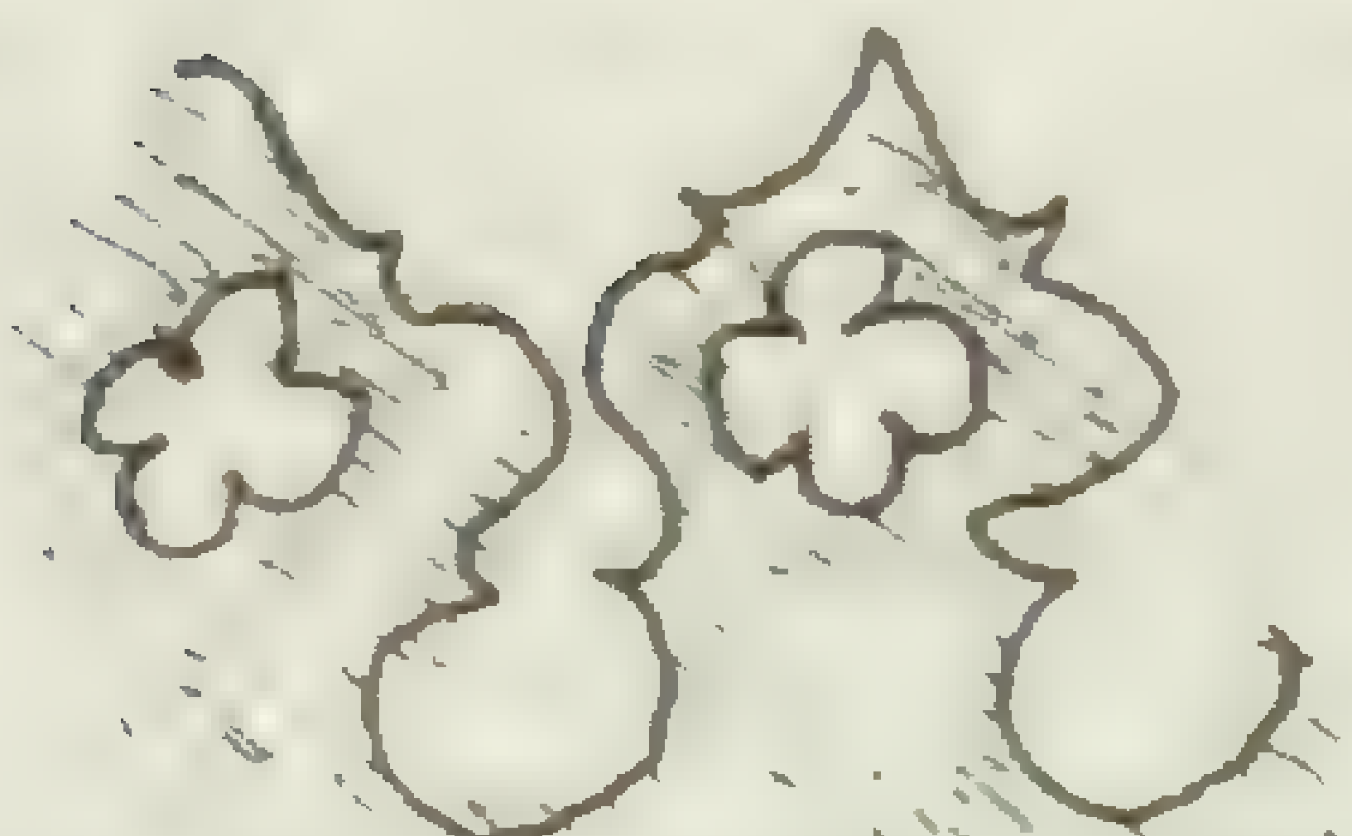

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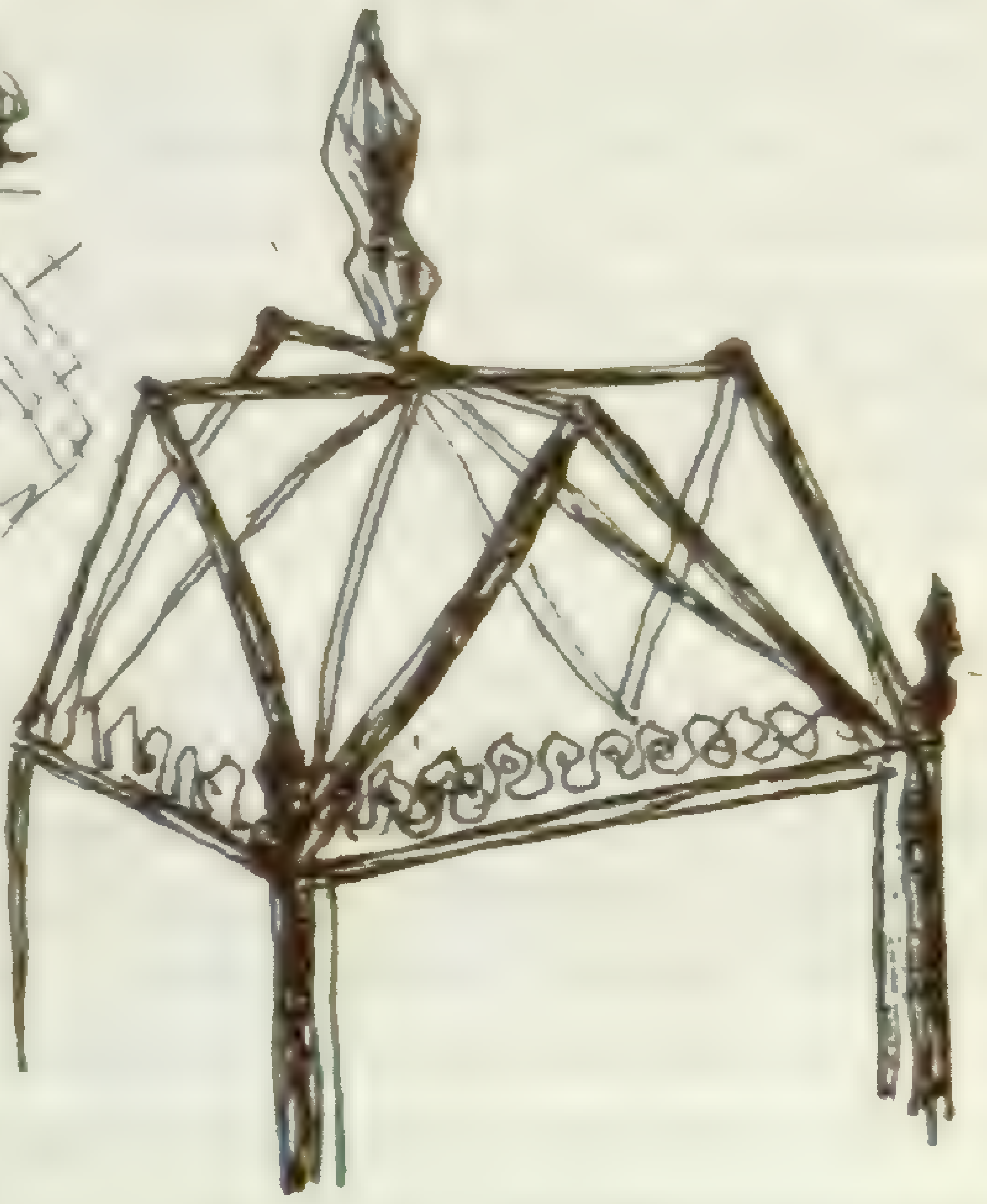

GABLE END

SOME FRENCH FERNS

M H Rickard

During the last two summers I have, in company with several members of the Society – Dick Cartwright, Jimmy Dyce (twice), Alma and Clive Jermy, Barbara and Tony Worland and my wife – been able to botanise in the area of France to the south of Lake Geneva largely in the Departments of Ain, Savoie and Haute Savoie. Since some members may be passing through this area on holiday in the future it may be of some interest to make available the results of our limited exploration of the region.

We were centred in the limestone country of the Upper Rhone Valley at a village called Massignieu de Rives near Belley in the Department of Ain. In the valleys locally, ferns were not abundant but there was a reasonable diversity of species with some of the more southern ones being frequent, e.g. *Asplenium fontanum, A. ceterach, A. scolopendrium, Polypodium interjectum* and *P. australe*, while others were very rare, e.g. *Equisetum ramosissimum* (Serrieres en Chautagne), *Polystichum setiferm* (Val du Fier) and *Adiantum capillus-veneris* (Yenne, Glandieu and near Annecy below the Gorges du Fier). The bulk of the ferns from the area were more typically Central European, e.g. *Equisetum hyemale, E. telmateia, Ophioglossum vulgatum* (found only at Les Mures), *Thelypteris palustris, Asplenium adiantum-nigrum, Athyrium filix-femina, Polystichum aculeatum, Dryopteris pseudomas, D. carthusiana* and *D. austriaca* (very rare at low altitudes, recorded from only one locality near Lucey at 430m).

Locally the mountains rise to nearly 2000m. All the rock is limestone and the fern flora is rather reminiscent of, say, Ingleborough in Yorkshire. Typical ferns were *Selaginella selaginoides, Botrychium lunaria, Asplenium viride, Athyrium filix-femina, Polystichum lonchitis, P. aculeatum, Dryopteris villarii* (Grand Colombier de Culoz, Montagne du Semnoz near Annecy and Mont Granier), *D. austriaca* and *Gymnocarpium robertianum*. Another fern, not so far recorded as a native British species, which is occasional on these mountains is *Cystopteris alpina.* On one occasion on Mont Granier our French "guide" carried in his rucksack all afternoon for Jimmy Dyce a specimen of this fern still embedded in a largish piece of limestone! By this time he had room in his bag as most of his copious French lunch had been eaten and the two bottles of wine he had carried up the mountain for "Les Anglais" had been consumed! Less common species, largely due no doubt to the limey nature of the mountains, were *Lycopodium annotinum* (a large patch discovered by Jimmy Dyce near the Colde la Faucille in the Jura Mountains near Geneva), *Huperzia (Lycopodium) selago* and *Dryopteris abbreviata* – found and confirmed by Clive Jermy (Grand Colombier de Culoz), *Equisetum sylvaticum, Oreopteris limbosperma, D. pseudomas* and *D. assimilis* (all on Mont Revard near Chambery) and *Athyrium distentifolium* (Mont Semnoz near Annecy).

Further afield in the south-east the mountains are much higher – this is the area from Mont Blanc (4807m) through the Vanoise National Park (3000+m), Mont Cenis (about 3000m) and the Chaine de Belle Donne (2987m). Here the rock is less basic but nevertheless at the appropriate altitudes many of the same species are still fairly common, e.g. *Huperzia selago, Selaginella selaginoides, Botrychium lunaria, Oreopteris limbosperma, Asplenium viride, Athyrium filix-femina, A. distentifolium, Polystichum lonchitis, P. aculeatum, Dryopteris pseudomas, D. assimilis, D. villarii,* and *Gymnocarpium dryopteris.* Other species which were found on the limestone mountains were less common, e.g. *Lycopodiun annotinum* (Coupeau near Mont Blanc), *Equisetum sylvaticum* (Chaine de Belle Donne), *Cystopteris alpina* (near Barrage de Roselend) and *Dryopteris abbreviata* (to the south of the Col du Glandon).

There were several species limited to this type of mountain, especially the following – *Lycopodium clavatum* (seen only at La Flatiere near Mont Blanc), *Selaginella helvetica* (noticed by Tony Worland growing over the damp rock at the side of the public catwalk up the Gorge de la Diosaz at Servoz near Mont Blanc), *Equisetum variegatum* (Col du Mont Cenis and Val d'Isere), *Cryptogramma crispa, Phegopteris connectilis* (as in Britain both locally common), *Asplenium septentrionale* (for a long time this eluded all our searches until Dick Cartwright was able with much pleasure to call us back to see a few small plants he had spotted on a boulder which most of us had passed without seeing the fern! Further botanising, however, revealed this plant to be quite commonly scattered throughout these mountains), *Woodsia alpina* (many times did we search for this but it was only in the second season that I was rewarded with the discovery of one small sick plant in its much publicised locality at the side of the road between Servoz and Pont Pelissier near Mont Blanc. However, more recently I was fortunate in finding a strong colony of this fern in the Chaine de Belle Donne not far from the top of the telesiege operating from Le Pleynet, above Le Fond de France) and finally *Blechnum spicant* (in my experience this is curiously one of the rarest ferns of the area having recorded it only from two places).

Rarely it was possible to travel slightly further afield in the opposite direction, to the west to the Massif Centrale. Here, across the River Rhone south of Lyon, the mountains are composed of acid rock and rise locally to just over 1400m on Mont Pilat. As expected, the fern flora was less varied than in the Alps but we were able to add one species and one hybrid to our list – firstly the species, *Asplenium forisiense*; this is intermediate between *A. billotii* and *A. fontanum* (neither of which did we see in the neighbourhood) with its distribution centred in the Massif Centrale area of France. We found it locally very abundant, especially at Malleval where it grew in nearly every rock crevice. Other localities in the same general area were east of the Col du Fayet, and above Chavanay in a roadside quarry. Secondly, the hybrid, *Asplenium X alternifolium (A. septentrionale X trichomanes)*; this was probably the most rewarding find of all, in view of the number of fruitless searches I had made for it in the UK! Altogether we found seven plants, some very large up to one foot across with hundreds of fronds, growing in the following localities (all on roadside walls near Mont Pilat) – east of Col du Fayet, below Columbier, and above Chuyer. We encountered a few other species of note, most of them commoner plants of the alpine foothills, e.g. *Equisetum sylvaticum, Phegopteris connectilis, Asplenium adiantum-nigrum, A. septentrionale* (very common), *Athyrium filix-femina, Dryopteris pseudomas, D. austriaca* and *Gymnocarpium dryopteris.*

In addition to the above account is should be added that the following species were widespread, growing in most areas – *Equisetum fluviatile, E. palustre, E. arvense, Pteridium aquilinum, Asplenium trichomanes* (up to 2000m), *A. ruta-muraria* (up to 2200m), *Cystopteris fragilis, Polypodium vulgare* (common in the range of 400-2000m+) and *P. interjectum* (common up to 500m only). Together this makes fifty species of pteridophytes plus one hybrid – not a bad reward for only limited fieldwork; however several species remain to be found, notably – *Lycopodiella (Lycopodium) inundata, Diphasium (Lycopodium) alpinum, Equisetum pratense, Osmunda regalis, Anogramma leptophylla, Cystopteris montana, Pilularia globulifera, Marsilea quadrifolia,* plus two other species doubtfully recorded from the area – *Dryopteris cristata* and *Woodsia ilvensis.*

In conclusion, I should say that for anyone who is not too distracted by the fascinating abundance of flowering plants, the area would well reward further exploration. Should any member be so moved and be prepared to make the effort to search me out at Les Mures, C1300 Massignieu de Rives, near Belley (it is almost certain that I shall again be returning next year!) I would be very pleased to see them for a cup of tea (a l'Anglais) or perhaps a glass of wine!

LOCAL GROUPS OF SOCIETY MEMBERS

J W Merryweather

At a Committee Meeting held in May this year a plea was put forward on behalf of some London members that a local group should be formed to meet in homes perhaps to have coffee, and discuss and admire ferns or to discuss projects that might suit those members' needs. It was felt that the onus was on those individual members to group themselves together and not to rely on the main body of the Society to organise them. It was also suggested that members in other regions of the country might organise themselves (a) to communicate with non-active members inspiring enthusiasm in them; (b) to seek out fern collections in order to report species and varieties present in them (The Secretary would be keen to collate material from the regions) with the hope of finding specimens of fern varieties long thought to be extinct; (c) to organise local day or weekend meetings – the number of the main Society meetings has been cut back somewhat this year because of poor turn-out at weekends. It is hoped that local groups will augment the number of meetings going on. These would be unofficial but of course people from other regions would be welcomed.

My wife, Margaret, and I volunteer to organise a group in the Yorkshire districts.

We know that Matt Busby at Birmingham University is already active in his area. The Potts at Weston-super-Mare have been suggested as likely people to start the ball rolling in the south-west. In the Cambridge area this sort of thing has been going on for years already and will probably continue. The south-east could be organised by London members, and Scotland, a huge area with almost every species of British fern, must have several keen members.

Either volunteer as leader or elect someone and then organise. Contact people through the membership list in Bulletin Vol 1 No 1 and additions in this issue. If you can organise local fern hunts please inform the Society so that they can be advertised. I must stress that these groups are not intended to be rivals to the main Society. They should be informal, meetings can well be impromptu, and administration should ideally be next to non-existent.

Finally an advertisement – those interested in a Yorkshire group please contact
Mr and Mrs J W Merryweather, Ferniehurst, Station Road, Bubwith, Selby, N Yorkshire.

NEW FERN VARIETY FINDS

J W Dyce

I am very pleased to record that I have been able to gather together more material than usual for this article as several members have been lucky enough this year to find many good varieties from a number of species. Leading the list comes *Asplenium scolopendrium* with 8 finds. Up in the north Bob Trippitt found a very good narrow 'Marginato-crispum' which is dark green, strong-growing and very fertile. A spore sowing from it should prove very interesting. John Barnett collected three plants at Ulverston near Kendal, two of them narrow forms of 'Cristato-crispum' and the other 'Sagittato-laceratum', all of them still not fully grown but first-rate plants which were brought in pots to the Calder Valley meeting and greatly admired by those present. Over the past several years Peter Corbin has found a few good specimens of 'Crispum' in the West Country and last year he was fortunate enough to find another one. The Tiverton meeting this summer in the same part of the country produced a few passable varieties and on a wall I found a 'Lacerato-marginatum' while Henry Schollick got a good 'Cristatum'. Another worthwhile 'Cristatum' was collected with some difficulty from limestone pavement by Charles Catlin and me during the Sedbergh meeting.

Polystichum setiferum has given us four new plants, none of them of very great merit except possibly an 'Acutilobum' which is still young but has good possibilities. It was found by John Barnett at Underbarrow near Kendal. The others were collected in a very good polystichum lane during the Tiverton meeting but all of them are more of an interesting nature than exciting. One is a very strong-growing plant with all its fronds regularly split into two or three at the apices, another is a rather poor 'Cristulatum' and the third which I regard as the best, is a large 'Falcatum', that is a plant with all the pinnules long, narrowish and curved. It will look a very fine handsome plant when well-grown in cultivation.

From Joan Clark of Onich I received a frond from an excellent *Asplenium trichomanes* 'Ramosum' from a colony which she found last year on a wall at Balachulish in Argyll. It is even more heavily crested and divided than any of the plants in our well-known colony at Keswick and I was hoping to visit the colony this year but did not have the time. Compared with such a variety the colony with merely bifid and trifid fronds found during the Tiverton meeting this year seems hardly worthwhile mentioning. Another species which occasionally produces a small-growing crested variety is *Blechnum spicant* and Alison Rutherford found one this year at Faslane not far from her home in Helensburgh.

This summer I visited Inchnadamph up in the north-west of Scotland to see the hybrid *Polystichum X illyricum (P. lonchitis X P. aculeatum)* found in the area last year by Allan Stirling. On a steep scree I found a crested *Dryopteris filix-mas* struggling to exist by pushing its fronds through crevices between the stones under which it was buried. Naturally it was not showing at its best but the cresting on the apices and pinnae looked good and I collected a couple of the many crowns. The plant looked tough and will probably succeed in surviving unless, as will very likely happen, it gets more deeply buried underneath the very unstable scree. Another find by Allan Stirling last year was a very good crested *Athyrium filix-femina*, growing near Loch Lomond; it has fronds with heavy divided apices but no pinnae cresting.

CLIMBING FERNS

H J Bruty

There are a number of ferns which have a climbing habit, but probably the most outstanding are the lygodiums which climb by means of their fronds. They climb clockwise and in their natural surroundings cling on small trees and shrubs. This genus consists of around forty species and is widely distributed in tropical, sub-tropical and temperate regions. Some of the most popular species include *L. circinnatum, L. longifolium, L. microphyllum, L. salicifolium* and *L. volubile* from Tropical Asia, *L. palmatum* from the USA, and *L. japonicum* from Japan. The last named is probably grown more than the rest as it does well in a cool greenhouse and is very useful for covering pillars.

These plants all tend to produce abundant roots and therefore do best if planted in a bed of soil where a free root-run is possible. An alternative is to build a rock circle on the greenhouse staging about 12 inches across and 18 inches high, and fill the pocket thus formed with a compost consisting of 2 parts loam 4 parts peat and 1 part sand to which some John Innes base fertiliser is added. As the plants grow the rock circle can be extended and thus the plant can remain undisturbed for a number of years. This treatment is not so suitable for *L. microphyllum*, however, as this species has a creeping rhizome which tends to grow outwards all the time. The older parts in the middle die away and thus one has to divide the plant, replanting the young growth into the centre of the pocket.

The best way to display lygodiums is to train the twining fronds up a series of wires. These can be fastened at the lower end to pegs arranged in a circle round the plant and at the upper end in a somewhat larger circle at roof level. Thus each frond is free to climb up its own wire and the whole plant shown off to the best advantage. If the fronds are required to cover a larger area the wires can be arranged in the form of a large fan. The very young twining shoots need to be given a start on the wires but require no attention afterwards. Most species of lygodium do not produce fertile leaflets until the fronds have climbed to about six feet. Hence, it is best to select a position where the plant can climb to a height of nine to ten feet before touching the glass. It should be remembered that when the fronds are nearing the top of the wires they will require plenty of water and a liquid feed once a week. Lygodiums are semi-deciduous but it is advisable to cut down the old fronds as soon as the young growths appear, otherwise there may be some difficulty in separating the fronds later.

So far I have dealt only with the lygodiums but there are other tropical climbing ferns which should be mentioned. *Stenochlaena palustris* and *S. tenuifolia*, for example, can climb to the tops of tall trees but, unlike the lygodiums, do so by means of their rhizomes. In cultivation they grow well on pillars covered with peat – this can best be done by surrounding the pillars with wire-netting. Two other tropical climbers which in nature tend to grow in more shady and moister places are lomariopsis and teratophyllum. In cultivation these low climbers grow best on portions of tree-fern or tree-trunk fibre and it is advisable to keep them in a propagating frame until they are well established into the fibre. For their further growth they still require a high degree of humidity.

There are some species of davallia and polypodium which also have a climbing habit. They attach themselves to trees by a creeping rootstock or rhizome which can be quite cut off from the ground as their roots find protection and food from the moss and the bark of the trees. These plants are epiphytic, whereas the lygodiums are terrestial and must have their roots in the soil.

PTERIDOMANIA – A CASE HISTORY

Botanicus Scoticus

It may be of interest to members to hear how this affliction (alluded to by Reg Kaye in the BPS Newsletter No 9) affected one of their number resident north of the Border.

One day some summers ago an unfamiliar female voice addressed me on the telephone. Nothing unusual about that since, to a member of a local natural history society with a slight reputation as a local botanist, such occurrences are not infrequent. I must admit however that the proposition which was presented rather staggered me. 'What were the chances,' she conjectured, 'of finding *Polypodium australe* in Scotland?' I concealed my surprise with no little effort, since the thought of looking for a fern not known to occur north of Westmorland had never really crossed my mind. However, the pteridomaniac was not one to be easily put off, especially in the face of strong evidence in the shape of old records for var. *serratum* and var. *semilacerum* in Ayrshire. Later, when we met, and I produced a copy of Dick Robert's paper on Scottish herbarium specimens of *P. australe*, her enthusiasm knew no bounds. By her own unaided efforts she rediscovered, after exhaustive searches along the coast, the rarity in one of its Ayrshire stations, and the great polypody hunt was on!

This initial success led to a series of rather hectic joint expeditions to far-flung corners of south-west Scotland. These were usually the result of a combination of intuition and close scrutiny of geological maps, but were not always attended by good fortune. There was the time when, in midwinter, we drove through a snowstorm to follow up a clue which seemed to indicate a possible *australe* site in mid-Lanarkshire, only to draw a blank. At such times as these, I appreciated to the full the implications of being a pteridomaniac. Such frantic peregrinations however have now led to the discovery not only of a dozen or so Scottish localities for the southern polypody but also of a number of sites for *Asplenium cuneifolium*, the quest for the latter having followed closely on the heels of the polypody hunt; not that the former is by any means abandoned. My pteridomaniacal friend now talks of finding it in Skye or even further north! I am being coerced into converting part of my suburban garden into a fernery. If this materialises perhaps I will really regard myself as having caught the disease. So far, however, my gaillardias, heleniums and lupins have not yet yielded to an invasion of *Dryopteris* and *Athyrium*, in spite of an offer of assistance with spade-work. This I may unchauvinistically accept eventually, but I am at present making a last-ditch stand against a ferny tide which threatens to disrupt the existing horticultural orthodoxy.

As others see us on a fern outing. This succinct description was given to a late arrival, seeking information on our whereabouts, during one of our field meetings – "A crowd of people wearing boots and rucksacks, moving slowly along a road and staring intently at walls." !

SOUTHPORT FLOWER SHOW

J W Dyce

There was the usual magnificent show of fine fern varieties at this year's Show, held on 22/24 August, but we missed the exhibits by our President which in the past two Shows have won many prizes. It was pleasing to see four new exhibitors this year, among them Ray and Rita Coughlin who are to be congratulated on the high standards of their plants. There were some big blanks on the stage, however, and we do need more members to take part and give support to this Show which is the only one to cater in a big way for ferns.

Noel Brookfield's large display in Class 6 again won him the Society's Silver Trophy, but his son, Rodney, was competing against him this year and had an entry almost as good which won him second prize. W H Howarth got third prize with an exhibit which was a great improvement on his last year's one. The other prizewinners are listed below in order of winning –

Class 7	Six hardy British ferns (dissimilar) N Brookfield, R Trippitt, Mrs D G J Smith.
Class 8	Six greenhouse ferns (dissimilar) N Brookfield, W H Howarth.
Class 9	Three foreign ferns, hardy in Great Britain R Coughlin, N Brookfield, W H Howarth.
Class 10	Three scolopendriums R Trippitt, N Brookfield, R Coughlin.
Class 11	Three polypodiums N Brookfield, R Trippitt, R Coughlin.
Class 12	Three polystichums R Trippitt, R Coughlin, N Brookfield.
Class 13	Three athyriums R Trippitt, R Coughlin, N Brookfield
Class 14	Three dryopteris R Coughlin, R Trippitt, N Brookfield
Class 15	Three plants gymnocarpium, phegopteris and/or thelypteris R Trippitt, R Coughlin, N Brookfield
Class 16	Three aspleniums, excluding Asplenium scolopendrium R Trippitt
Class 17	One British fern R Coughlin, R Trippitt, Mrs D G J Smith.
Class 18	One greenhouse fern N Brookfield, M Plowman, R Coughlin.

The standard of the exhibits was good but it was unfortunate that the Brookfield exhibits in Class 6 were marred by sun scorch. In the other classes some outstanding plants shown by Noel Brookfield were his excellent huge pans of polypodies, a large platycerium and *Davallia canariensis.* Bob Trippitt always has good plants of *Asplenium scolopendrium* 'Ramosum' and his 'Ramosum Lupton' was especially good this year. He also had very fine specimens of *Polystichum setiferum* 'Divisilobum Iveryanum', *P. aculeatum* 'Pulcherrimum Drueryi', *Dryopteris filix-mas* 'Cristata' and

Athyrium filix-femina 'Clarissima'. Ray Coughlin put up some very good plants, among them *Blechnum tabulare (B. chilense?), D. pseudomas* 'Angustata', *P. setiferum* 'Divisilobum Iveryanum' and a particularly fine *P. aculeatum* 'Pulcherrimum Gracillimum'.

Matt Busby has taken over responsibility for organising the Society's Stand in the Specialist Societies' Tent and this year he set up an interesting exhibit showing the growing of ferns from spores which attracted a lot of attention and proved to be an excellent talking-point with visitors to the Stand. We had a large exhibit of fern fronds and plants and Society literature, and were kept busy most of the time. Matt and I were there most of the time and we had willing help from Bernard Hayhurst, Norman Robinson, Dick Cartwright, Bob Trippitt and John Barnett, as well as from some other members for shorter periods. In all, 24 members visited the Stand.

Reginald Kaye was the Judge for the fern competitive classes.

SPORE AND PLANT EXCHANGE

ORGANISER – R F Cartwright, 13 Perry Mill Road, Peopleton, near Pershore, Worcs.

Owing to illness David Russell has not been able to give much time to the Exchange this year and has now resigned. We are fortunate in having Dick Cartwright willing to take over and all queries and spores should in future be sent to him. Unfortunately, in the circumstances we are unable to publish a list of spores held by the Exchange, but Dick Cartwright will be gathering together all he can get and will try to fulfil as many orders as he can if you will write to him. But, PLEASE DO NOT FORGET that he needs spores to distribute and we hope that members at home and overseas will rally round to support him, and enable him to build up a large selection as soon as possible.

In the last issue of the Bulletin we listed bodies and individual members interested in the exchange of spores and plants. That information is still up-to-date and can be referred to, so to save space we are publishing additions only this year –

Dr J B Cordero, Box 795, Quebradillas, Puerto Rico 00742, wishes to exchange living specimens and spores and is willing to supply any fern needs from Puerto Rico.

G Downey, Dunelm, 24 Priory Road, Bicknacre, Essex CM3 4EY, has a large number of fern varieties and alpines and young ferns in pans which he wishes to dispose of rather than throw them away. Members are welcome to call and take home some ferns, but PLEASE PHONE (Danbury 3773) OR WRITE FIRST. He would like plants of the woodsias and would be grateful for any young ones from members who have them to spare.

Martin C Johnson, 959 Glennan Drive, Redwood City, California 94061, USA, who is also a member of the Los Angeles International Fern Society, grows ferns from spores as a main interest. He wishes to correspond with other members having similar interests, and can also put members in touch with growers of platyceriums.

It has been suggested to us that we send out a "Wants List" and a "For Sale List" with the Bulletin and this we shall gladly do if members will supply the Secretary with the necessary information to put buyers and sellers in touch. While all deals will be between interested parties direct we would suggest the sellers consider passing on to the Society at least part of the net proceeds of sales.

Bring and Buy Sales – To help Society funds, a very necessary activity these days, we have decided to organise the selling of fern plants at our meetings. Obviously, the more convenient meetings will be indoor ones or those held in members' gardens – such a one was held during the visit to our President's garden in June when £36 was raised but members coming to any of our meetings can bring sporelings and plants which are surplus to their needs for sale to other members. We hope all members will keep this in mind when they have plants to spare. This activity can also make an additional attraction to stimulate "come-togethers" among members in the regions.

FERN GARDENS

A full list of public and private gardens which can be visited by members was given in our last issue, and to save space we are publishing additions only this year –

Lt Col Philip G Coke	Robin Hill, Stinchcombe, Dursley, Glos. BY PRIOR ARRANGEMENT – LETTER OR PHONE (Dursley 3567)
Birmingham Botanic Gardens	Westbourne Road, Edgbaston, Birmingham.

Gardens to visit, an annual booklet published by the Gardeners' Sunday Organisation, lists gardens opened to the public. Obtainable from bookshops for 15p, or 20p post free from the Organiser, Mrs K Collett, White Witches, Claygate Road, Dorking, Surrey.

REVIEW

LAIFS, the Bulletin of the Los Angeles International Fern Society.

This monthly publication commenced in July this year to replace the Newsletter. It is a small journal – so far – with in the latest issue, No 3, 12 pages in close-set type, full of information with illustrations, also advertisements. The cover with the title, LAIFS, depicts an excellent outline drawing of *Asplenium scolopendrium.* We congratulate the editor who is not named, on a splendid achievement, and hope the new magazine will grow from strength to strength. Very informative articles already published are *Plant Nutrients* by Dr Duane Crummitt and *Growing Ferns for Show* by Sylvia Leatherman.

Membership of the Society is remarkably cheap at US dollars 3.50 (about £1.50) and entitles members to this bulletin, a monthly 2-page fern lesson and the Fern Annual, as well as access to the Spore Store. Enquiries should be addressed to Wilbur Olson, 2423 Burritt Avenue, Redondo Beach, California 90278, USA.

MARRIAGES AND BIRTHS

We are happy to make the following announcements –

Marriages:	Ken Trewren – Kate ______	on 6 January 1973
	Roger Worland – Barbara Kobylanska	on 28 September 1974
Birth:	David and Mariam Russell	a daughter on 24 January 1974

To Roger and Ken and their wives we offer our best wishes for long and happy married lives together, and to David and Mariam our congratulations.

MEMBERSHIP LIST — Additions and amendments

New members

ADELAIDE UNIVERSITY, Barr Smith Library, Adelaide, South Australia 5001.
AKEROYD J R, The Elms, Weston Green, Thames Ditton, Surrey.
ANDREWS Bruce, 85 Bywong Street, Toowong 4066, Queensland, Australia.
ARMSTRONG D, 5165 Sherbrooke Street, Vancouver, British Columbia, Canada V5W 3M3.
BATTAGLIA Professor E, Istituto Botanico, Citta Universitaria, 00100 Roma, Italy.
BENNERT Dr H Wilfried, Institut fur Okologie der TU Berlin, Rothenburgstrasse 12, D1000 Berlin 41, Western Germany.
BIRKS Dr H J B, Botany School, Downing Street, Cambridge CB2 3EA
BUCK William R, Department of Botany, University of Michigan, Ann Arbor, Michigan 48104, USA.
CAMPBELL Dudley, 58 Sunnyside Avenue, Pleasantville, New York 10570, USA.
CORDERO Dr Juan B, Box 795, Quebradillas, Puerto Rico 00742.
DELENDICK Thomas J, 2985 Botanical Square, Apt 3S, Bronx, New York 10458, USA
DOWNEY, Gerald, Dunelm, 24 Priory Road, Bicknacre, Essex CM3 4EY.
FAIRWEATHER Graham, 7 Huntroyde Close, Burnley, Lancs BB12 0SW.
FALZON George, 81 Manoel Street, Gzira, Malta.
FARTHING D A J, 60 Red Lion Lane, Shooters Hill, London SE18 4LE.
FITZHARRIS James E, 3 Maywood Drive, Raheny, Dublin 5, Eire.
GOODSON Sam M, 1107 Fleetwood Drive, Lookout Mountain, Tennessee 37350, USA.
GOUDEY Chris, 14 Rudolph Street, Werribee, Victoria 3030, Australia.
GOWER Ian, 5 Ethel Road, Ashford, Middlesex TW15 3RB.
GREEN Eldred E, 2334 W 110th Street, Chicago, Illinois 60643, USA.
GRIMES Jeffrey W, BSc, and Mrs Hannah J, BSc, 10 Clovers End, Roffey, Horsham, Sussex.
HAUFLER Christopher, Department of Plant Sciences, Jordan Hall, Bloomington, Indiana 47401, USA.
HOVLAND Johannes, 5610 Øystese, Hardanger, Norway.
INSTITUTO BOTANICO DR JULIO HENRIQUES, Universidade de Coimbra, Coimbra, Portugal.
JOHNSON Martin C, 959 Glennan Drive, Redwood City, California 94061, USA.
KEMP T H S, 9 Redruth Road, Harold Hill, Romford, Essex RM3 9SL.
KONGELIGE NORSKE VIDENSKABERS SELSKAB BIBLIOTEKET, Erling, Skakkes Gt 47c, Trondheim, Norway.
LEAN Dr Alison S, Kyloe, Plain Road, Smeeth, Ashford, Kent.
MACKAY Miss Sally J, 22 Mitchell Avenue, Newcastle-upon-Tyne NE2 3LA.
McALLISTER Dr Hugh A, University of Liverpool Botanic Gardens, Ness, Neston, Wirrall, Merseyside L64 4AY.
McFARLAND Mrs W R, Route 3, Box 304A, Valrico, Florida 33594, USA.
MANHEIM Mrs A R, 31 Blomfield Road, London W9 1AA.
MARSDEN Craigh R, Botany Department, University of Adelaide, GPO Box 498, Adelaide, South Australia 5001.
MILLS John, White Heather Cottage, Gartocharn, Alexandria, Dunbartonshire.
PALMER A D, 73 Sprules Road, Brockley, London SE4 2NL.
PETTY J S F, 63 Lexton Drive, Southport, Lancs PR9 8QN.
RIPLEY Mr and Mrs Paul H, 29 Shores Green Drive, Wincham, Northwich, Cheshire.
RITCHIE G B, 45 Lansdowne Road, London W 11.
ROWLEY Mrs Mabel, 195 Rutland Road, West Bridgford, Nottingham NG2 5EA.
SANDERS Mr and Mrs John, Badger Cottage, Barrack Road, Mashbury, near Good Easter, Chelmsford, Essex.
SCOTT LCDR Hugh P, (MC), USNR, 1806 Villa Road, Birmingham, Michigan 48008, USA.
SMITH R McIntyre, 8A Links Road, Epsom, Surrey KT17 3PS.
STAUFFER Lynn E Jr, Star Route, Windham CT.06280, USA.

STUART Douglas A, Brighton House, Millar Barn Lane, Rossendale, Lancs BB4 7AV.
TURCHAN Michael J, 905 Beacon Street, Boston, Mass.02215, USA.
WHITE John B T, 1 Parkview Chase, Burnham Lane, Slough, Bucks.
YOXALL James H, BA, Farthings, Links Road, Bramley, Guildford, Surrey.

Changes of Address

ALLEN Mrs B E G, Finca la Rana, Los Barrios, Province de Cadiz, Spain.
AMSTERDAM UNIVERSITY, Universiteits-Bibliotheek, D en N 250, Singel 425, Amsterdam, Holland.
BARNES Peter G, c/o Royal Horticultural Society Gardens, Wisley, Ripley, Woking, Surrey.
BARNETT John, Bur Tree Cottage, Hebden Road, Grassington, Yorks. (*Temporary*)
BATTEN Dr David J, 8 Binghill Road W, Milltimber, Aberdeenshire.
CASTLE-SMITH Mrs Jean M, Bridge of Murthly Cottage, By Dunkeld, Perthshire.
COMBES Dr Richard W, MD, 3 Robinwood Lane, Rutland, Vermont 05701, USA.
CROXALL Mrs B S Parris, MSc, Department of Botany, University of Edinburgh, at Royal Botanic Garden, Edinburgh EH3 5LR.
FRESHWATER Peter B, MA, ALA, Beavington House, 1 Eggington Road, Wollaston, Stourbridge, West Midlands DY8 4QJ.
GATZI Dr W, Poststrasse 16, 9000 St Gallen, Switzerland.
GIBBY J Michael and Mrs Mary, "Nancy", Golden Nook Bridge, Hargrave, Chester.
HAMER Michael R, 55 St Michael's Road, Aldershot, Hants GU12 4JH.
HILL Mrs Angela, Fairford, Mill Lane, Great Barrow, Chester CH3 7JF.
HILL Stephen and Mrs Teresa J, 32 Cyprus Road, Cambridge CB1 3QA.
MACKENZIE W G, 7 Chartwell, Frimley Green, Camberley, Surrey.
MATSUMOTO Sadamu, Institute of Biology, Faculty of Education, Shizuoka University, 836 Ooya, Shizuoka-shi, 420 Japan.
MERRYWEATHER James W and Mrs Margaret E, Ferniehurst, 4B Station Road, Bubwith, Selby, Yorks.
MEYER Fred M, 5351 South Westmoreland Road, Suite 132, Dallas, Texas 75237, USA.
MORLEY J V, 1 Highland Close, Worlebury, Weston-super-Mare, Somerset BS22 9SW.
OLLGAARD Benjamin, MSc, Vesborgvej 14, 8240 Risskov, Denmark.
POLLARD R S W, LAMTPI, JP, 10 Clydesdale Avenue, Chichester, Sussex PO19 2LW.
PRICE D T, BSc, ARCS, ALS, Bettws Lodge, Bettws Newydd, Usk, Monmouthshire.
SIMPSON Eric, 22 Otter Close, Bar Hill, Cambridge.
THOMSEN Hugo, Kirkegade 60, DK-7430 Ikast, Denmark.
TOWERS M, c/o 21 Compton Road, London N21.
WALKER Dr Trevor G, BSc, PhD, FLS, Department of Plant Biology, Ridley Building, The University, Newcastle-upon-Tyne NE1 7RU.
WILLIAMS S L, 226 Upton Road South, Bexley, Kent DA5 1QT

Changes of name

Delete — National Lending Library for Science and Technology,
F G Hardy J D Jones Michael Price

Re-insert as follows —

BRITISH LIBRARY, Lending Division, Accessions Department, Boston Spa, Wetherby, Yorks LS23 7BQ.
HARDY F Gavin, BSc, ALS, Address unchanged.
WILKS-JONES John D, The Black Lion, 11 Castle Street, Conwy, Caernarvonshire.
PRICE Michael G and Mrs Grace Romero-Price. Address unchanged.

Delete from Membership List

Antiquariaat Junk
F C Boutin
V Capper
Boughton Cobb
C E Coulthard
Ford Foundation Sponsored Program
Geoffrey Gilbert
Miss P Insall
John A Knouse
B J Perry
Mrs J Shaw
Mme E St Clair-Morford
Mrs Shirley Yuille

OBITUARIES

It is with great regret that we have to announce the following deaths –

Boughton Cobb died shortly after Christmas 1973 after a stay in hospital of some months. He joined our Society in 1954 and although living on the other side of the Atlantic, always took a keen interest in the Society and its activities. He was born in Lake Forest, Illinois, the son of a noted American architect, and he himself studied architecture and art, graduating in 1915 from Harvard University. During the first world war he served as a first-lieutenant in the US Navy and was awarded the Bronze Star. In his business life he was associated with textiles and was vice-president and director of two large mills. He belonged to many clubs in America and in this country was a Fellow of the Linnean Society and also of the Royal Horticultural Society. Natural history interested him greatly, particularly the ferns, and he was a member of the American Fern Society as well as of our Society. He was the author of a book on the American and other ferns, *A Field Guide to the Ferns*, published in 1956. He is survived by his wife, a son and daughter, and by 11 grandchildren and 4 great grandchildren, to whom we extend our deepest sympathy.

Geoffrey Gilbert. It was a very great shock, particularly to our active members who knew him so well, to learn at our Annual General Meeting this year that Geoffrey died at the end of September. He was a familiar figure on our field meetings, accompanying us in his old motor caravan in which many a cup of welcome tea was drunk while resting after some strenuous scramble or sheltering from inclement weather. He was beloved by all of us and we shall miss him greatly. Our deepest sympathy is extended to his family.

We hope to publish a full obituary in our next issue.

J W Dyce.

Extracts from correspondence – Mrs Angela Hill writes, "I always remember our second worst weed on the tea estate in Ceylon, *Adiantum cuneatum.* I was horrified to see large heaps being burned – at a cost of £60 a month (how much now?! – ED), and I found it difficult to establish in my garden!"

After visiting a Midlands flower show Matt Busby wrote – "Among the many exhibits was a class for ferns. Only two pots had been entered, second prize going to an unnamed davallia and the first prize to a pot of *Asparagus plumosus.* Feeling that I could not ignore this often made mistake I tactfully pointed out the error to the show secretary. She was very apologetic but I feel that this reflects sadly on people like myself who profess to know and enjoy ferns but cannot take the trouble to find out if small local shows are prepared to give space for competitive displays of ferns. Such shows deserve every encouragement." (Growers, over to you! – ED)

MEETINGS PROGRAMME 1975

Meetings Secretary	A J Worland, 102 Queens Close, Harston, Cambs CB2 5QN.
Meetings Committee	R F Cartwright, J W Dyce, J W Merryweather, M H Rickard.

Saturday 8 February	Indoor Meeting at the British Museum (Natural History), Cromwell Road, London SW7 5BD, at 3.00 pm.
Saturday 15 February	Day Meeting – Ferns of the Sussex Weald in winter. **Leader:** Martin Rickard Meet at 10.30 am at "Morestead", Crowborough Hill, Crowborough.
Saturday 17 May	Visit to the Fern Houses and outdoor fern boarders at Kew Botanic Gardens at 2.30 pm.
Friday/Sunday 20/22 June	Weekend Meeting in Shropshire. **Leader:** Matt Busby. **Centre:** Denehurst Private Hotel, Shrewsbury Road, Church Stretton.
Friday/Sunday 11/13 July	Weekend Meeting in East Yorkshire. **Leaders:** James and Margaret Merryweather. **Centre:** "Ferniehurst", Station Road, Bubwith, Selby.
Friday/Saturday 1/9 August	Week and/or Weekend Meeting in the Cowal District of Argyll. **Leader:** Jimmy Dyce. **Centre:** Fir Park Hotel, Sandbank, near Dunoon.
Thursday/Saturday 21/23 August	Southport Flower Show. Many fern classes showing selection of best varieties. Visit the Society's Stand in the Societies' Tent.
Saturday 23 August	Visit to Graham Thomas's garden at Briar Cottage, Fairfield Lane, West End, Woking, Surrey, at 2.00 pm.
Sunday 31 August	Day Trip to Essex/Suffolk. **Leader:** Vivien Green. Meet at Honeysuckle Cottage, Halstead Road, Aldham, Colchester, Essex, by 11.30 am, or earlier after 10.30 am.
Saturday/Saturday 6/13 September	Week Meeting at Barmouth, Merioneth. **Leader:** Martin Rickard. **Centre:** Plas Mynach Hotel, Barmouth.
Sunday 28 September	Day Visit to Holme Fen area between Huntingdon/Peterborough. Meet at 12 noon at Holme Fen, entrance north of Holme village.
Saturday 4 October	Indoor Meeting at the British Museum (Natural History), Cromwell Road, London SW7 5BD, at 3.00 pm.
Saturday 4 October	Annual General Meeting to be held at the British Museum (Natural History), Cromwell Road, London SW7 5BD, at 3.30 pm.

REGIONAL MEETINGS

Sunday, 8 June	S W England.	Organisers:	Chris and Mary Potts
Saturday, 16 August	Yorkshire.	Organisers:	James and Margaret Merryweather.
Saturday, 27 Sept	Midlands.	Organiser :	Matt Busby

British Pteridological
Society

Bulletin

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THE BRITISH PTERIDOLOGICAL SOCIETY

BULLETIN

edited by
J W DYCE

VOLUME ONE · NUMBER THREE

1975

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1975

BRITISH PTERIDOLOGICAL SOCIETY
OFFICERS AND COMMITTEE 1975–76

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Dr Stanley Walker

Vice-Presidents
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R Kaye Professor Irene Manton

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and
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The Herbarium, Royal Botanic Garden
Edinburgh EH3 5LR

Committee
H J Bruty A R Busby R F Cartwright
P G Coke J A Crabbe A C Jermy H L Schollick
F J Tingey R Unett J R Woodhams

The Society is open to all interested in any way in FERNS and FERN ALLIES upon payment of an annual subscription of £5.00 (subscribers), £4.00 (full members), £3.00 (students under 25 years old), £3.00 (members not receiving Gazette). Full details will be sent upon application to the Secretary.

Back numbers of the GAZETTE and the BULLETIN are available for purchase either as complete sets or single issues. Full details can be obtained from the Secretary.

The Bulletin Volume 1 No 2 was published on 20 November 1974

THE

BULLETIN

Vol 1 1975 No 3

SECRETARIAL NOTES

A new President, Dr Stanley Walker, was installed in the Office at the Annual General Meeting this year and we are pleased to give him a warm welcome. Dr Walker is the Director of the Cytogenetic Unit of the University of Liverpool Nuffield Wing School of Medicine, but he confesses he has been sorry to leave fern research and still retains a strong interest in the Dryopteris family and continues to monitor student research in this field. We try to alternate our presidents between botanists and horticulturalists and Dr Walker replaces Henry Schollick, a very keen grower and our very popular president for the past three years. He has taken a very active part in all the Society's work during his spell in Office and we owe him a great debt of gratitude for his invaluable services which I am pleased to add will still be available as he is now a member of the Committee – he refused to become a Vice-President.

Change is all around us and another new appointment is Dr Chris N Page to the editorship of the Gazette in place of Clive Jermy. We welcome Chris to his new Office and I refer readers to his article in this issue of the Bulletin outlining his views and aims for the future of the Gazette. In the same article he pays tribute to his predecessor and his great achievements during his 16 years as Editor, so I will not repeat them here except to say that we owe Clive Jermy our warmest and appreciative thanks for the magnificent work he has done in making the Gazette one of the foremost scientific journals of the day. He too is not lost to us and will continue to serve the Society as a committee member and on the editorial board.

This has been Professor Holttum's year, when we have celebated his 80th birthday. The Fern Gazette, a double issue, which was published in July was dedicated to him and we are continuing the theme in this issue of the Bulletin, also an enlarged one, with papers about the man himself and his works. We wish him many more years of active life in which to continue his great work in the world of plants.

Talking about the Gazette, I would like to make the point that the double issue published in July represented two parts of Volume 11 – *parts 2 and 3*, and it brings the publication of our botanical journal right up-to-date; part 3 is the issue for our present year which commenced in July last. I labour this point, particularly for the benefit of the librarians of subscribing bodies – if perchance they trouble to read these notes, which I doubt! – in an endeavour to stop unnecessary correspondence to me complaining about missing parts. This also applies to the Bulletin – both journals are annual issues – and already over the last few months some university and other librarians have been complaining of the non-receipt of this present issue!

CHANGE IN THE SOCIETY'S YEAR – Will all members and subscribers please note that a change in our year from July/June to January/December was approved at the Annual General Meeting. Our present "year" will therefore last for six months only, July to December 1975, and the next subscriptions are due on 1 January 1976.

SUBSCRIPTIONS for the present year were due on 1 July and the Treasurer will be glad to receive yours if you have not already sent it. Many members still send their subscriptions to me and can I please remind them that these should now be sent direct to the Treasurer, Dr B A Thomas.
PLEASE NOTE THAT THE SUBSCRIPTION RATES HAVE BEEN RAISED WITH EFFECT FROM 1 JANUARY 1976 – WILL ALL MEMBERS PLEASE READ THE INFORMATION GIVEN IN THIS ISSUE BY THE TREASURER AND ACT ACCORDINGLY. Prompt payment is requested and I draw particular attention to the fact that publications will be withheld in future until subscriptions are received. Members and subscribers will appreciate that in the present financial climate we can no longer afford to be lax in the collection of dues.

MEETINGS – Meetings Cards for 1976 are enclosed with this Bulletin to all inland members. Overseas members, visiting Britain, can obtain them on application to the Meetings Secretary.
I am asked to request all those who plan to attend field meetings to let the Meetings Secretary or leaders know in good time, and if, having done so, you later find you are unable to attend, to advise him accordingly. It is MOST frustrating for leaders planning their itineraries to find that the numbers expected do not materialise, and MOST EXASPERATING to delay the start of the meeting, wasting time waiting for someone who has changed his mind and has no intention of turning up.

READING CIRCLE – The American Fern Journal, a quarterly containing much information for those seriously interested in ferns, is circulated to Reading Circle members. I will gladly add new names to the list.

TALKS ON FERNS – I get frequent requests from horticultural and other societies for speakers on ferns. Possibly there are many members able and willing to do this and it will enable the Society to perform a useful service to the fern cult if they will advise me so that a list can be compiled for future use. All arrangements, financial and otherwise, will of course be between speakers and the bodies concerned. *If you can help please do not delay advising me.*

THE STANSFIELD MEMORIAL MEDAL – At the AGM this year the Stansfield Medal, struck in 1938 to commemorate Dr F W Stansfield, a founder member and first president of the Society, and one of our greatest authorities on ferns, was awarded to Reginald Kaye and to the Secretary in recognition of their services to the fern cult and to the Society. Both were also elected Honorary Members. Only four previous awards of the Medal have been made – to W B Cranfield in 1938, Robert Bolton in 1948, P Greenfield in 1952 and Rev E A Elliott in 1959.

GUERNSEY FERN STAMP ISSUE January 1975 – We still have some first-day covers left for sale at 60p each. Applications to be sent to me.

CHELSEA FLOWER SHOW 1976 – Mrs H Key of Fibrex Nurseries Ltd in Evesham, Worcestershire intends to put up an exhibit of ferns at Chelsea Flower Show next year. This is a real innovation for Chelsea since it must be very many years ago that a display devoted entirely to ferns was shown there. Mrs Key has invited me to help on her Stand and I look forward to this opportunity to meet fern enthusiasts. I hope that all members visiting the Show will make a point of calling on us.

WANTED – I get many enquiries from members and from other sources, both at home and abroad, for information on where certain ferns can be obtained. The most frequent requests are for the davallia species, especially *D. canariensis,* and for *Dicksonia antarctica.* Will members knowing sources of supply (but *not* florists whose ferns are usually of the more popular kinds used for house decoration, and who if they do chance to have some of the more unusual ones, are unlikely to have a constant supply) for these ferns and any other of the more uncommon species likely to be of interest to collectors, please let me know.

PAGE NUMBERING – Please note that the pages in No 2 of the Bulletin were inadvertently numbered 1 to 36 instead of 45 to 80 following on from No 1. Members who retain their copies and may wish to bind the complete volume later, should amend them as the correct numbers will be used in the index to the volume.

FINALLY – The exceptional demands on my space this year have precluded the inclusion of several papers – including some of my own! – which I had hoped to publish. May I assure the contributors that their articles have not been overlooked or pushed aside, and it won't be very long until I am looking around for copy for the next issue.

This year I have remembered a duty which I have always overlooked until too late with previous issues – to pay tribute to Jim Crabbe for his invaluable help in scrutinising all my material before it goes to press. A marginal 'Why?' or 'What does this mean?', as well as spelling corrections, has saved many a blunder and vague ambiguity from being committed to print, and I am most grateful to him.

TREASURER'S REPORT

I am sorry that my first Treasurer's report is rather gloomy. As members are well aware, everything has increased in price and the Society has now reached the point where its expenditure is greater than its income. Unfortunately, this situation is bound to worsen.

This year's financial statement shows that both income and expenditure are once again greater, with the most marked increases being the cost of the Gazette, secretarial expenses and postage. The increased numbers of members and sales of back numbers has necessitated a greater number of copies of our publications being printed, hence dramatically raising the cost. However, the most important detail to notice in the Statement is the costing of two parts of the Gazette. This is simply because Volume 11 part 1 was behind schedule and was not paid for during the last financial year.

Three items have prevented the Society from ending the year with a great loss. The Secretary worked hard in selling the Guernsey Fern Stamp first-day covers and made a profit of nearly £150, and our deposit account in the bank yielded just over £100 interest; several generous donations amounting to over £300 have been received to help defray the cost of the Holttum dedication volume of the Gazette. The complete breakdown of this double volume will be given in the next financial statement as one half of its cost (ie part 3) is being met from the 1975 income.

Realising that a deficit was likely I proposed the increases in membership fees which were circulated to members. These were ratified at the AGM and are now the official rates. THE OTHER IMPORTANT CHANGE THAT WAS RATIFIED WAS THE CHANGE IN OUR SUBSCRIPTION DUE DATE TO 1 JANUARY. This brings our financial year into line with the calendar year, a change which has been suggested many times by both members and subscribers. THE NEW SUBSCRIPTIONS ARE THEREFORE DUE ON 1 JANUARY 1976, NOT JULY 1976. The current financial year is thereby shortened to six months but both publications have been issued within this period, being the Gazette Vol 11 part 3 and this Bulletin.

Members now have the opportunity of not receiving the Gazette, although your Editorial Committee hopes that only very few will decide to do this. Before deciding, please read the article by our new Editor, appearing in this issue on page 113. Enclosed with this Bulletin you will find a Subscription Due Reminder Notice with details of the new rates and a tear-off slip for your use to indicate into which category of membership you wish to be enrolled. *There is also a space for members who wish to terminate their membership and we earnestly ask those who have decided to resign to complete and return this at their earliest convenience to enable the officers to assess the true membership position of the Society as soon as possible.*

Many members have been very tardy in sending their subscriptions which has naturally aggravated our financial problems. We can ill afford to let subscriptions fall into arrears, SO WE ARE WITHHOLDING FUTURE PUBLICATIONS UNTIL SUCH TIME AS THEY HAVE BEEN PAID FOR.

In conclusion, therefore, all members should note that their subscriptions are next due on 1 January 1976 at one of the following rates –

Subscribers	**£5.00**
Full members	**£4.00**
Students (under 25 years old)	**£3.00**
Members (not receiving the Fern Gazette)	**£3.00**

FINANCIAL STATEMENT AT 30 JUNE 1975

ORDINARY ACCOUNT

Income

1973/74	1974			£	£
£ 23	30 June	To	Opening Balance		567.59
847			Subscriptions		911.27
6			Donations		9.25
			Sales –		
75			Gazettes, Newsletters, Bulletins	196.25	
33			Victorian Fern Craze	4.70	
5			Beginners Guide	3.85	
50			International Directory of Pteridologists	15.50	
30			Reprints	21.60	
20			Book Sales	15.00	
2			Sundry	15.11	272.01
			Profits from the sales of Guernsey stamps		143.13
92			Interest on Deposit Account		103.78
					£2007.03

Expenditure

198	By Payment	Metloc a/c Bulletin Vol 2 No 2		184.00
		Index for Gazette Vol 10		75.00
430		Econoprint – Gazette Vol 11 part 1		695.00
		Vol 11 part 2		460.00
		Meeting programmes and cards		24.00
109		Printing and Stationery		52.61
143		Secretarial and Editorial Postages		191.10
8		Meetings expenses		14.00
12		Bank charges on current account		5.00
160		Transfer to Publications Account		200.00
		Subscriptions –		
5		Royal Horticultural Society	5.00	
5		Council for Nature	5.05	
		Biological Council	11.45	
6		Southport Flower Show	6.48	27.98
				1928.69
		Balance in hand		78.34
				£2007.03

PUBLICATIONS ACCOUNT

			£
1974			
30 June	To	Balance	850.00
1975			
30 June		Transfer from Ordinary Account	200.00
		Balance in hand	£1050.00

GREENFIELD FUND

1974			
30 June	To	Balance	283.20
		Donation from Mrs E Greenfield	500.00
		Proceeds from fern sales	36.00
		Donations from members	5.00
		Balance in hand	£ 824.20

THE ANNUAL GENERAL MEETING – 4 October 1975

The 72nd Annual General Meeting of the Society was held at the British Museum (Natural History) and was attended by 33 members. It heralded several changes. First, we elected a new President, Dr Stanley Walker, who takes over from Henry Schollick on completion of the latter's three years in the Office. We look forward to the same happy association with Dr Walker that we enjoyed with his predecessor who entered very fully into our active life, both in committee and in the field. Clive Jermy, after 16 years as our Editor-in-chief during which he brought our Gazette to the forefront among the world's scientific journals, is replaced by Dr Chris Page who is planning with great enthusiasm to uphold the journal's reputation. Both Henry and Clive are not lost to us and have been elected to the Committee in place of the two retiring members, James Merryweather and David Russell who have served us well during their terms of office. Our new Treasurer, Dr Barry Thomas, was in action for the first time, very decisive action too, of a necessary but not pleasant nature, to wit, raising drastically the subscription rates – but he tells all this himself in his Report so we shall not enlarge on it here.

In contrast to the Treasurer, the Secretary was able to talk more cheerfully about the events of the year. A record number of 74 new members joined but this was largely offset by resignations and "drop-outs" – still, if we include 31 spouses, not ranked as paying members, we are now well over the 500 mark. But we include in this figure many dilatory payers, without doubt some of them also "drop-outs", and these together with resignations which we are bound to get – and have already started to dribble in – because of the increases in the subscription rates, will pull the actual figure down again. A pleasing development is the increase of Australian interest in ferns and the nucleus of an active branch of the Society there.

The Meetings Secretary reported on the year's meetings which again were very poorly attended with the exceptions of the Barmouth week meeting in Wales and Vivien Green's day meeting in North Essex. Our most disappointing meeting, number-wise, was the Argyll one but it was a most enjoyable one for the few who did attend. The weekend meetings were reduced in number and will be again next year. The regional day ones had a mixed success and we are now looking closely at the idea of meetings, not advertised in the Meetings Programme, organised privately by active members in various parts of the country to attract the local membership. More use of photography for recording purposes at field meetings was discussed with the result that a Sussex member, Tom Buckeridge, has volunteered to lead a photographic instruction field day in his county next year.

The question of renewing the practice of awarding Certificates of Merit for new fern varieties of outstanding worth was discussed briefly but much more thought requires to be given to this and it was passed back to the Committee for further consideration.

At last year's AGM, acting on a suggestion made by Dr Anne Sleep, the Secretary agreed to organise the purchase for sale at a profit to members, of first-day covers of the coming issue by Guernsey of fern stamps, with the result that we purchased 1200 covers, 1000 of them ordered by the Los Angeles International Fern Society in the USA. We still have a small number left and up-to-date have made a profit of over £150. The work involved, however, was much greater than anticipated when the Secretary lightly undertook the task which included getting the blank first-day covers and a pre-release of the stamps from Guernsey some weeks before the issue date, addressing the envelopes, affixing the stamps and returning the lot to Guernsey to be cancelled on the issue day 7 January 1975, after which they were returned to the Secretary for distribution to those who ordered them. There is quite a saga attached to it all – getting 1200 envelopes addressed, paid "stamp-stickers" working against the clock and fitting the work in with preparations for Christmas, customs import forms to be completed, with long waits at the Customs Office near London's dock area, lengthy discussion on how much VAT they should charge us, and many other new experiences for the Secretary which he has no wish to repeat !

A pleasing finish to the AGM was the decision to award the Society's Stansfield Memorial Medal to both Reginald Kaye and the Secretary, and to make them honorary members of the Society.

MEETINGS 1975

We had a very good turnout of 34 members and friends at the *Spring Indoor Meeting*, held on 8 February at the British Museum (Natural History). Martin Rickard gave a very interesting talk, illustrated by slides on the ferns and flowers of the French Alps found by him during the past two summers he has spent there. A very informative exhibit of fern fronds and diagrams, prepared by James and Margaret Merryweather, showed the two hybrid ferns *Dryopteris X deweveri* and *Polystichum X illyricum* with their parents. There were books and plants for sale as well as on exhibit, and we enjoyed a light meal prepared by Margaret Merryweather, Joan Woodhams and Dick Cartwright.

The *Autumn Indoor Meeting* was held at the Museum after the AGM on 4 October, and was attended by 36 members and friends. Our newly-appointed Indoor Meetings Sub-committee, Jim Crabbe and John Woodhams, has tightened up the organisation and we had a very successful meeting which flowed more smoothly. Fern books and other literature and plants were on exhibit, along with others for sale which brought in some cash for the Society's coffers. Henry Schollick, to mark the completion of his three years as our President, gave a retiring address entitled 'The Way that I Went, with acknowledgement to Robert Lloyd Praeger'. This very interesting talk was delivered in Henry's usual inimitable style and was much enjoyed – a full report appears elsewhere in this issue of the Bulletin. The catering arrangements were again in the very capable hands of Margaret Merryweather and Joan Woodhams.

There was a larger attendance of 31 members and friends at the *Kew Meeting* on 17 May. This meeting continues to be one of the most popular annual events, due in very large measure to the efforts of Professor Holttum and John Woodhams who impart so much interesting fern information to the company as they tour the Fern Houses. This year John gave a talk and practical demonstration on the various methods of propagating ferns. A highlight of these meetings is tea afterwards at the Holttum's home near the Gardens and this year we again enjoyed their hospitality when Mrs Holttum did wonders in catering so generously and efficiently for the large number of people who descended on them. Thank you, Professor and Mrs Holttum.

DAY MEETINGS

The Sussex Weald — 15 February. Perhaps the facetious title of "Snow Meeting" given to this outing in the Meetings Programme, conjuring up visions of driving snow and sleet, put members off. In the event it was a day of rain with a bitter cold wind, but the five of us who turned up were not deterred. The time was spent in the area between Tunbridge Wells and Crowborough and our leader, Martin Rickard, took us to several places of fern interest where in all during the day we saw 11 fern species which included *Dryopteris aemula* in small numbers and *Hymenophyllum tunbrigense.* We were, of course, in the "home" country of the latter. An old record for *Asplenium billotii* was followed up but we did not find it. A very acceptable tea at the home of our leader's mother helped to thaw us out at the end of the day before departing homewards.

The visit to **Graham Thomas's garden** on 23 August had, very regretfully, to be cancelled as Mr Thomas moved house earlier in the summer. Many members expressed disappointment and we hope that this visit has only been postponed and that we shall be privileged to see his new garden in a few years' time when Mr Thomas has got it into shape.

Essex/Suffolk – 31 August. We are always grateful to Vivien Green who does a lot of "homework" to make this annual visit a success and this year she was well rewarded with an excellent turn-out of members and friends – 14 in all. A day of hazy sunshine was ideal for our purpose but the whole area is suffering badly from drought, wet places were completely dry and many of the ferns we found had only dried up fronds. As usual we had to travel distances to see only a few ferns since they are far from plentiful in this part of the country, but we were rewarded in seeing many flourishing specimens of *Polystichum setiferum* in one place, and in another, the only wet habitat we found, a large colony of the great horsetail, *Equisetum telmateia*, was admired. One large wood contained only shrivelled *Dryopteris filix-mas* but some small-growing *D. carthusiana* seemed to be coping successfully with the conditions. We finished the day with a visit to the woods near Tiptree to see the royal fern which grows happily there, albeit the four plants we saw were very small. In the same place *Blechnum spicant* and *Oreopteris limbosperma* grow in small numbers – both common enough ferns in many parts of the country but comparatively rare in Essex. One of the most enjoyable parts of the day was the visit to Vivien's garden with its many ferns and her extensive spore sowings.

Holme Fen, Cambridgeshire – 28 September. After a day of wind and heavy rain on the Saturday we were fortunate to get it fine and sunny on the Sunday when a party of 5 members assembled at the Fen which is one of the Nature Conservancy Reserves with a nature trail through it. A most interesting exhibit is the high iron post marking the progressive drop in the level of the ground – pure peat – since 1840 when the surface was about 15 feet higher than at present. The shrinkage is due to draining and the consequent drying out of the area. The woodland is predominantly birch under which a few fern species grow, the dominant one being *Dryopteris carthusiana* in great abundance in company with *D. austriaca*, also very common. The only other fern in any quantity was *D. filix-mas* and there was some *D. pseudomas* which was not very typical of the species. The hybrid *D. X tavelii* was seen, as well as a few plants of *Blechnum spicant.* It was noted how *Pteridium aquilinum* was completely absent from quite large areas of the Fen and abundant as the only ground cover in other parts. At one time the rare *D. cristata* grew on this fen when the habitat was wetter and more to its liking. An uncommon fern was *Athyrium filix-femina*, except along the steep banks of the drainage ditches where it flourished in quantity.

We completed the day with a short visit to nearby Stilton to see *Asplenium ceterach* growing on the churchyard walls. This was the only recorded habitat of the fern for Huntingdonshire until the revised county boundaries moved it into Cambridgeshire. There are 15 small plants on the wall and with it is abundant *A. ruta-muraria.*

REGIONAL DAY MEETINGS

The poorer attendance at meetings, particularly the weekend ones, led us to examine our meetings policy with the result that we have had fewer weekend meetings this year but included in the programme three regional day meetings in the hope that the personal approach of the organisers would persuade more local members to attend.

Frankly, it is disappointing to report that as Society meetings they have not achieved their purpose. Not a single member turned up for the Merryweather's meeting in Yorkshire on 16 August but the Potts at Weston-super-Mare fared somewhat better on 8 June and Mary Pott's report is worth recording –

"Our local fern meeting went well as far as we personally were concerned – the Coughlins came to see us a week early as they were going to be in Canada, and brought a box of ferns and Philip Coke and Kenneth Adlam also brought lots of ferns so we had a jolly good swap round. Since no one else turned up we were able to divide the spoils quite amicably! I think it was felt that money would quite sully the proceedings amongst so small a company. (The meeting was originally planned as a 'Bring and Buy' plant exchange for Society funds.) We have made return visits to Kenneth, Philip and the Coughlins, so though there was only a small attendance at the meeting it has encouraged lots of visits and plant swapping. The others also said that they thought regional meetings a very good idea as they will keep people in touch and provide pleasant social occasions at the minimum expense. I did write to everyone in the area who I thought might come so perhaps it could be suggested in the Bulletin that for the cost of a few letters more people could be encouraged to try this – though of course it would appeal more to the gardeners and collectors in the Society."

We want more members with the enthusiasm of the Potts to stir up interest among members in their immediate areas, but it would seem that the organisers will have to make the approaches and will not be able to rely on members, with a few exceptions, contacting them.

Matt Busby's meeting in Birmingham was postponed from 27 September to 18 October as he found this was a more convenient day for the 8 members who attended. They met in the morning at the University of Birmingham Winterbourne Gardens where they were conducted round by the Superintendent, Mr Colin Ellingworth, and later went on to spend a couple of hours looking round the Botanical Gardens and the small greenhouse collection of ferns there, which included a large specimen of the hybrid *Dicksonia X lathamii.* They then retired to Aston University in Gosta Green to enjoy hot coffee and sandwiches and have a look at the fern house. A long discussion with exchange of plants and fern information ended the day.

WEEKEND MEETINGS

Shropshire – 20/22 June. This meeting, centred at Church Stretton and led by Matt Busby, attracted only 4 members, perhaps because it was thought that this was a poor area for ferns. We proved it to be otherwise and the valleys and woods of this hilly countryside produced in all 16 ferns and one horsetail. On Saturday we devoted our time to the ground around and to the south of our centre when 12 of the more common species were seen. These included *Asplenium scolopendrium* and very abundant and widespread *Oreopteris limbosperma.* In Plowden Woods further south 11 species were noted in this very ferny area and included both *Polystichum aculeatum* and *P. setiferum.*

The polypodies were common and both *P. interjectum* and *P. vulgare* were found. On the Sunday we explored some of the woodlands along Wenlock Edge, a very long narrow ridge stretching for many miles, which lies to the east of Church Stretton. Ferns are very common here but the species are few and we recorded 10 only. Again *P. aculeatum* was seen and a few colonies of *Asplenium adiantum-nigrum* and *A. trichomanes* on a disused railway bridge. We finished the day at Upper Millichope near the south end of the Edge and in the deep and shaded bed of a stream renowned for its fossils we found abundant *A. scolopendrium* and *P. aculeatum.*

East Yorkshire – 11/13 July. There was a slightly better attendance of 6 at this meeting, led by James and Margaret Merryweather and centred at their home in Bubwith near Selby. Since they moved here last year they have been very active in the field and had some very good fern habitats to show us. We recorded during the weekend 16 ferns and 3 horsetails, including some very fine *Osmunda regalis, Gymnocarpium robertianum,* abundant *Dryopteris carthusiana* and the hybrid *D.X deweveri* also in great abundance in one place. The brick platform of an old abandoned railway station at Foggathorpe was rich in ferns and it was here we saw the *G. robertianum* growing well but rather stunted. Saturday morning was spent on Skipwith Common, a damp woodland in which *D. carthusiana* and *D.X deweveri* were very common and in the afternoon we visited Askham Bogs from which there are old records for the rare *D. cristata.* Our main search was for this fern, for all its associated plant life is there and it could very well still exist in this area which is densely overgrown and extremely difficult to penetrate in places. *Thelypteris palustris* was very common as well as *D. carthusiana* and several fine plants of *O. regalis* were admired, one of them a particularly large and handsome clump. On Sunday we visited Strensall Common to the north of York hoping to find *Pilularia globulifera* but the Army occupies most of the common as a shooting range so our hunting was restricted. The common fern was again *D. carthusiana* but none of the ground searched seemed suitable for the pillwort and we did not find it. A visit further north to the ruined Rievaulx Abbey finished our weekend. The few ferns seen, 6 in number, were mostly struggling juveniles of common species but there was one small flourishing colony of *Cystopteris fragilis.*

The following are records for the day and weekend meetings not included in the *Atlas of the British flora* –

Nat Grid ref.	
	Essex
52/81. 8917	Pods Wood – *Dryopteris carthusiana.*
52/83. 8732	South of crossroads – *Polypodium interjectum, Polystichum setiferum.*
52/91, 9017	Pods Wood – *Blechnum spicant, Oreopteris limbosperma, Osmunda regalis.*
	Cambridgeshire
52/18. 1589	Stilton Church – *Asplenium ceterach, A. ruta-muraria.*
52/28. 2089	Holme Fen – *D. X tavelii.*
	Shropshire
32/38. 3787	Onny Bridge, Plowden – *P. aculeatum.*
3886	Plowden Woods – *D. pseudomas, P. setiferum.*
32/49. 4190/91	Minton Batch – *D. pseudomas.*
4391	Little Stretton/Minton road – *D. pseudomas.*

32/49. 4392	Ashes Hollow, Church Stretton – *D. pseudomas.*
4394/4494	Carding Mill Lane, Church Stretton – *D. pseudomas.*
4491	Little Stretton – *A. adiantum-nigrum.*
32/58. 5289	Upper Millichope – *D. pseudomas.*
32/59. 5595/5695	Easthope Wood, Wenlock Edge – *A. adiantum-nigrum, A. trichomanes, B. spicant, D. austriaca, D. pseudomas, P. aculeatum.*
	East Yorkshire
44/63. 6536/37	Skipwith Common, west – *D. austriaca, D. X deweveri.*
6636	Skipwith Common, east – *Athyrium filix-femina, D. austriaca, D. X deweveri.*
44/66. 6560/6660	Strensall Common – *B. spicant.*
44/73. 7135	Bubwith – *Equisetum fluviatile.*
7537	Foggathorpe, old railway station – *A. ruta-muraria, A. trichomanes, A. scolopendrium, Gymnocarpium robertianum.*

WEEK MEETINGS

Argyll – 1/9 August. The ground chosen for this meeting, centred at the Fir Park Hotel, Sandbank, north of Dunoon, was new to the Society. It is not the most convenient of areas for moving around for it is dissected by the long sea-lochs penetrating far inland, which involves long drives to reach parts only a few miles distant as the crow flies. The driving was, however, through magnificent hill and coast scenery and was a joy in itself, adding much to the enjoyment of the disappointingly few members who attended. For the whole of the week we were four in number, Bert Bruty, Jimmy Dyce, David Ellis and Chris Page, and for the first weekend we had Richard Unett with us. It must be admitted, nevertheless, that a small party of keen members had much in its favour for we were off in good time in the mornings, nobody took odd days "off duty" and the hunting was concentrated so that we were able to cover much more ground than would have been possible with a larger party. By the end of the week we had acquired quite a good knowledge of a large region stretching from Dunoon in the east to Kilfillan in the west, and north as far as Strachur, with the Firth of Clyde and the Kyles of Bute as our southern boundaries. There is much excellent fern ground, mountain, ravine, woodland and waterside and we found it all productive of interesting ferns, abundant in numbers and numerous in species – in some small places we recorded up to 18 ferns.

Our first day was devoted to our home territory, the Cowal peninsula, a mountainous and wooded district well watered with many hill streams. On the map it looked good and promising but on the whole proved rather disappointing in the places we visited except for one wooded corrie. We travelled south from Dunoon round Toward Point and up the west side to the end of the road. Our first stop at the bridge crossing the Ardyne Burn near Knocknow produced 8 species, common woodland ones plus *Asplenium ruta-muraria* and *A. trichomanes* growing on the bridge, but at Brackleymore further north the 9 species seen included more of interest in *Dryopteris aemula,* albeit a singly plant only, and *Hymenophyllum wilsonii.* The latter was a small patch but it set a pattern for the week since this fern proved to be one of the more common species wherever we went. Here also, Richard Unett found our first variety, a caudate form of *Blechnum spicant* which was interesting enough to collect and has since been found to have another very interesting character – it is anomalous. At Inverchaolain we noted on the churchyard walls 5 spleenworts, *A. adiantum-nigrum, A. ruta-muraria,* a few plants of *A. ceterach, A. trichomanes* and a single *A. scolopendrium,* along with some *Polypodium interjectum.* An interesting find was *D. X tavelii* but we were to observe much more of this hybrid, growing strongly and to a large size, during the week. Inverchaolain Glen looked promising and we set off through woodland to reach it only to find that the burn flowed through a deep and inaccessible corrie while the hillside above was a jungle of blackberry and equally inaccessible. Possibly there are many "goodies" in that corrie but all we saw was some *H. wilsonii* on the rocks at the top end of the gorge where the Glen opened out with a paucity of ferns, only 7 being seen, all of them with the exception of the hymenophyllum, the common wood and hill species.

Disappointed with the results of our day's exploration we retraced our steps and on the south coast hunted a stretch of the Ardyne Burn which here flowed through a flat wooded terrain, some of it quite boggy, where we hoped to find *D. carthusiana* – a vain hope, and the 7 species seen were the usual woodland ones. *Athyrium filix-femina* was common, as well as *D. pseudomas* in extensive clumps of large plants. We decided to make one more stop on the return journey up the east coast at the Burnmakiman Burn north of Dunan. This proved to be the high spot of the day and compensated us fully for our previous frustrations. The burn flows through a deep but wide wooded corrie and was full of ferns both in numbers and species – 15 of them. Growing abundantly were *A. filix-femina, B. spicant, D. austriaca, D. filix-mas* and *D. pseudomas*, along with *Oreopteris limbosperma, A. scolopendrium, P. interjectum* and the ubiquitous *Pteridium aquilinum.* In places where the burn was confined to a narrow channel with cliff walls *A. trichomanes* was noted and *Polystichum aculeatum* grew to a large size in a habitat very much to its liking. The wet rocks were covered with *H. wilsonii* and to our great delight *H. tunbrigense* was also present in quantity, standing out distinctly from its relative with its more divided and crispy look. A few plants of *D. aemula* were seen and *Phegopteris connectilis* was common on the wet slopes. We went on our way with more contented minds, admiring as we did so the walls along the coast road north of Dunoon as we approached our hotel, festooned with *A. trichomanes* obviously very much at home. Inland too, the main road between Dunoon and Sandbank had similar ferny walls and in one place the *A. trichomanes* gave place to *A. ceterach* flourishing in great abundance and size.

On Sunday we spent the day in Puck's Glen, a deep ravine running up the hillside in one of the Forestry Commission woods near Benmore. The Commission has turned the Glen into a forest walk, the path running along the bottom following the burn with at times a series of steps leading up the steeper places, and coming out on the open hillside about three quarters of a mile up. The Glen is full of ferns, 18 species being seen by us and many of them are in great abundance. The burn was low enabling us to use its course instead of the path so we were able to explore all its more inaccessible corners. The lady and buckler ferns were common all the way up, growing to a large size and among them were frequent plants of *D. X tavelii.* It was pleasing to see that lovely fern *D. aemula* in many places for most of the way, at times very large growing, as was *P. aculeatum* occupying crevices and draping rock faces, and *B. spicant.* Even the smaller ferns were growing to a larger size, particularly *A. trichomanes* which in some places was very handsome. Only a very few small plants of *A. scolopendrium* were noted and very little *O. limbosperma* although no doubt this fern was in greater numbers in the open outside the corrie. *P. vulgare* was growing mostly on tree trunks but there was not much of it and *P. interjectum* was not seen at all. One doubtful record was for *Cystopteris fragilis* – the plants were small, not fertile, and more likely to be young *A. filix-femina.* A pleasing sight was *Gymnocarpium dryopteris* and *P. connectilis* in drifts all the way up the Glen, draping the rocks and slopes with their graceful fronds. Both hymenophyllums were present in large numbers in places covering the rocks and in some places the species were intermingled. The day was a very hot one but in the shady depths of the Glen it was pleasantly cool and we enjoyed our scramble. Later we went on to the Younger Botanic Gardens at Benmore, which now belong to the Edinburgh Botanic Garden. Chris Page is in charge of the conifers here, and on the slopes, hidden away among the trees, he showed us an old fern grotto which at one time was quite an elaborate structure with a glass roof but now open to the sky. He is planning to reinstate it as a fern garden when the undergrowth and some of the trees have been removed, and the place has great fern possibilities. We were hoping to find some survivors of the old fern collection but could find only one, a single plant of a large-growing rather wide-pinnuled *P. setiferum* 'Acutilobum'. It was disappointing to find this not very attractive variety the sole survivor of a fern collection which must at one time have contained many fine plants.

We explored further afield on Monday, travelling up Loch Eck and Loch Fyne and down Gleann Beag to Loch Goil. Well down the Loch at Carrick we stopped for a short time to look at the old ruined castle. Apart from *P. interjectum* very few ferns grew on its walls although the village walls were well covered with *A. trichomanes* and some *A. ruta-muraria.* Not much else was seen and we retraced our steps to more ferny areas noted en route. About a mile north of Carrick the road runs along the side of the loch with rocky woodland sloping down to the water and ferns were more prolific here. They included both hymenophyllums in quantity on the rocks, *H. wilsonii* being the more common. A single plant of *D. assimilis* was found and a crested *A. trichomanes* collected. Near the top of the loch quite a large stream comes down from the hills at Lettermay and we hunted up it for a half-mile as far as some waterfalls above which the valley opens out and becomes less interesting. We found 14 ferns and one ally, *Equisetum sylvaticum*, but none were in great numbers except the lady and the buckler ferns. At the waterfall there was some *P. aculeatum* and a few patches of *H. wilsonii* and along the burn the occasional small drift of *P. connectilis*, and *O. limbosperma* on the more open ground. On the road bridge grew *A. adiantum-nigrum, A. trichomanes* and some *C. fragilis.* In Gleann Beag on the way coming we were attracted by what appeared to be a very good fern corrie cutting deep into the hillside down from the mountain Cruach nam Mult, and this was our next stop. The climb was a steep one, clambering up the burn for a mile till the corrie ran out on to the open mountain. Ferns were in quantity although only 13 species were seen along with 2 allies. We made our first discovery of *A. viride* growing in fair numbers on the rocks high up, accompanied by *A. trichomanes* in some places. In the same place *D. abbreviata* and *Lycopodium selago* were seen and on some damp rock a few plants of *Selaginella selaginoides* were noted. *C. fragilis* was occasional as was *P. connectilis* and one small colony of

G. dryopteris was found. High up *P. aculeatum* grew on the rock and the frequent *A. filix-femina* was scrutinised carefully since we were now getting high enough for *A. distentifolium*. As in previous years on high ground in Scotland some lady ferns were found with larger more rounded sori approaching in appearance those of the alpine lady fern, but in all cases the indusia were present although very ragged. There was some discussion on the possibility of such plants being hybrids between the two species and Chris Page collected material for checking purposes.

After a night of thunder and heavy rain it continued intermittently wet all the next day with low cloud on the hills. We had planned to go up Glen Kin, a few miles from our centre, and explore the north-facing cliffs and corries at its head but the weather conditions decided us to remain on lower ground. Where two streams meet and two old bridges are bypassed by a new road amidst woodland at the bottom of the Glen ferns were abundant but mostly the large woodland species, among them *D. carthusiana,* and in some places the horsetails, *E. arvense* and *E. sylvaticum,* with *A. trichomanes* and *A. adiantum-nigrum* on the bridges. Our finds here were 12 species in all.

Our changed plans took us westwards up Glen Lean to the head of Loch Striven, down the east side of Loch Riddon to Colintraive and further west on the road to Otter Ferry on Loch Fyne. The day was a series of short stops at places en route where the ferns seemed interesting but rain and wet undergrowth restricted our movements. At Clachaig a long high wall covered with ferns attracted our attention and on it grew *A. ruta-muraria* and *A. trichomanes* in abundance with a few plants of *A. scolopendrium* and *P. interjectum.* On the slopes at the other side of the road *A. filix-femina, B. spicant, D. filix-mas, D. pseudomas* and *O. limbosperma* were common along with *P. aquilinum* and *E. arvense.* At Loch Tarsan near its hydro-electricity dam we hunted up a deep corrie until driven back by rain and an even worse deterrent – midges which were biting viciously. The 11 species seen here included *D. abbreviata, H. wilsonii, P. connectilis* and *P. interjectum.* Rounding the north end of Loch Striven a rocky hillside brought us to our next stop but it was not a very interesting place and the persistent rain discouraged us still more. Some *E. sylvaticum,* a few plants of *A. trichomanes, C. fragilis, P. connectilis* and some scattered *P. interjectum* were seen and *H. wilsonii* was frequent on the wetter rocks. From here we moved on to Colintraive where we turned without stopping and retraced our steps for 2 miles to Fearnoch where we scrambled down the steep wooded and rocky slopes to the loch edge in the hope that *A. marinum* might be growing there. Ferns were plentiful everywhere on the slopes except in places where the bracken had taken over completely but only 10 species were recorded. On the rocks grew very fleshy-fronded *A. adiantum-nigrum* and *P. interjectum,* and all around *A. filix-femina, B. spicant, D. austriaca, D. pseudomas* and *Pteridium aquilinum* covered the ground in profusion. The wall higher up along the road was clothed in *A. ruta-muraria, A. trichomanes* and a different large-growing form of *A. adiantum-nigrum* with long pointed pinnules, possibly sub-species *onopteris.*

A study of the geological map showed a belt of limestone further west not far from Otter Ferry and a search for this led us to a deep and narrow corrie on the hills above the ferry. It proved indeed to be limestone country and during an exciting scramble down the corrie splashing for most of the way in the bed of the stream we recorded 18 ferns and 3 allied species. In rock crevices grew *A. adiantum-nigrum, A. trichomanes* and *C. fragilis* but none were abundant. More common was *A. viride* very much at home in some places, but only one plant of *A. scolopendrium* was noted, and *G. dryopteris* and *P. aculeatum* were equally rare. There were some small plants of *D. abbreviata, H. wilsonii* was fairly common and both polypodies *P. interjectum* and *P. vulgare* were seen, the former being the more common. The other ferns in the corrie were *A. filix-femina, B. spicant, D. austriaca, D. filix-mas, D. pseudomas, O. limbosperma* and *P. aquilinum.* Again we kept a watch on the lady fern and again found the fern with the seemingly intermedial sori. The fern allies present were *L. selago,* only two plants one of them extraordinarily like a large clump of *S. selaginoides* which was also there along with *E. arvense.*

On Wednesday we were in Glen Branter and spent the morning in the deep ravine valley of the Allt (Gaelic for *burn* or *stream*) Robuic in the damp climate of which ferns abounded. Only parts of the corrie were accessible and in these and the surrounding wooded ground 15 ferns and one horsetail were found. All the common larger ferns were flourishing wherever they could find root-room and on the rock faces *A. trichomanes* was frequent and large-growing, as was *P. aculeatum.* On the more sloping places there were drifts of *G. dryopteris* cascading luxuriantly downwards and even more abundant and spectacular were the large masses of *P. connectilis* growing all over the area. We noted some vigorous *A. viride* in sheltered rock crevices and strong growths of *P. interjectum* on trees but only one plant of *A. scolopendrium.* On more open ground a small colony of *E. sylvaticum* was seen and some very large magnificent specimens of *D. X tavelii* but it was noted that *D. filix-mas* was very scarce. Higher up the corrie at a high waterfall, *A. viride* was even more common, accompanied by *H. wilsonii* and *P. aculeatum.* Altogether this short stretch of the Allt Tobuic provided an extremely enjoyable morning's hunting.

In the afternoon we walked for some distance up the adjacent and much more open Glen Shellish but after the morning this was an anticlimax. Species were fewer and more scattered, and the numbers of plants were small with the exception of *O. limbosperma.* The only addition to the earlier finds was *D. carthusiana* but it was small and not characteristic of the species. We returned home via Glen Finart to Ardentinny and round the Kilmun peninsula to the Holy Loch on the south side of which our hotel was magnificently situated on Lazaretto Point. Only one stop was made on the way, at Sligrachan in Glen Finart where the road crosses a deep ravine. During our short pause here 13 ferns were seen, some in great numbers. On the bridge grew several species among them *A. scolopendrium* and in the corrie was *P. connectilis* with some *H. wilsonii*; a small plant of *D. aemula* was also found.

The improvement in the weather on the previous day continued on Thursday and although dull at times was very comfortable for our active pursuits. The west claimed our attention again and we travelled by the now familiar route up to Strachur, noting on the way a few colonies of *E. fluviatile* growing in Loch Eck. We followed the road down Loch Fyne past the Otter Ferry to Kilfillan and on the way stopped between Barnacarry and Garrien in Strathlachlan where the road crosses a stream and the ferns seemed interesting. The 14 species and one ally found were growing mostly along the road and on the bridge and a search along the burn added little more, only *A. viride* and *G. dryopteris*, as well as some *P. aculeatum* to augment the one plant seen on the bridge. A few plants of

P. connectilis, A. trichomanes and *P. interjectum* were noted and the others were all the more common woodland ferns. Further south where some cliffs rose from the loch-side we hoped – in vain – to see *A. marinum* but other spleenworts were common on the rocks and the roadside wall, *A. ruta-muraria,* abundant *A. trichomanes* and strong-growing *A. adiantum-nigrum* again with the fleshy texture rather like *A. marinum.* An old overgrown quarry south of Otter Ferry at Ballimore brought about our next stop which proved to be a most interesting one although only 13 ferns were seen. Very large-growing *A. trichomanes* grew on the rocks and there were some very good patches of *C. fragilis*; *D. carthusiana* was also there and both of the polypodies. One particularly fine colony of *P. interjectum* was flourishing on a large horizontal tree branch and some time was spent photographing it.

Our main quest today was for the limestone band shown on the geological map passing near Kilfillan and running into the loch just to the south of the village. We hoped to find some access to the coast at this point but could find none and had to content ourselves with a search up the Kilfillan Burn which was rather inaccessible in places. The large common ferns were plentiful and there was some *G. dryopteris, P. aculeatum* and in one place a large stretch of *H. wilsonii* covering all the rocks in profusion. The roadside walls near the village were covered with spleenworts, *A. adiantum-nigrum, A. ruta-muraria* and *A. trichomanes,* along with *P. interjectum* and *P. vulgare.* We drove further south and across the peninsula to Kames and Tighnabruaich with no further stops and continued north to join our well-travelled route back to Holy Loch. On our way we noted some very promising ravine country along the side of Loch Riddon and promised to make this our venue for the following – and the last – day of the meeting.

Accordingly, on a hot sunny Friday we were back with Loch Riddon far below us on one side and high corried slopes ascending on the other. Our first hunt was up a narrow deep ravine at Craig Cottage, a very difficult scramble up the bed of the burn for a short distance as far as a waterfall but very rewarding, for the habitat was a very congenial one for ferns which proliferated and 14 species and one ally were recorded. The large ferns luxuriated wherever they could find room to grow, on the rock walls was *A. trichomanes,* and *H. wilsonii* covered the lower rocks like moss, *G. dryopteris* and *P. connectilis* cascaded down towards the water, and *P. vulgare* and *P. aculeatum* were also there. Of particular interest near the waterfall was a colony of *B. spicant* conspicuous by reason of the narrow widely-spaced pinnules on all the fronds. On examination we found the plants to be one of the 'Anomalum' varieties with sporing on the barren fronds. Some of the plants were collected and it will be interesting to see if the character is retained in cultivation. Most such varieties collected in the past have reverted to normal under garden conditions. Another corrie a mile to the south was very similar but larger and we were able to climb further up before reaching a waterfall. The ferns too were similar except that we added some *A. adiantum-nigrum* to the list. A feature here was luxuriant *H. wilsonii* growing not only over all the rocks but up tree trunks and branches. Another similar-looking corrie further down above Port Driseach was explored and proved quite uninteresting with but few ferns. We were to prove later though that its lower reaches between the road and the loch were very different.

We dropped down from the heights to loch level at Tighnabruaich and followed the low road back to Port Driseach. From here one can walk along tracks and paths northwards along the loch-side, through thickets of rhododendron for a time and then interesting woodland in the lower reaches of the corrie, now widened out, which had proved so disappointing higher up. Ferns grew to a large size along the track and the common dryopteris species with *A. filix-femina* and *O. limbosperma* as well as the hybrid *D. X tavelii* were very impressive. We found 18 species which included both of the hymenophyllums and David Ellis commented on how often we had seen *H. tunbrigense* growing in conjunction with rhododendrons. Thinking back over the week we could recollect only one habitat for this fern where rhododendrons were not also seen by us and I was able to confirm that this same association applies in the "home" country of the species around Tunbridge Wells where my mental picture of this fern always seems to include rhododendron. On walls in more open places *A. adiantum-nigrum* grew with *A. trichomanes* and one very young plant of *Osmunda regalis* was discovered sending out its fronds from a crack in a large rock. We hunted around for others but the parent could have been hidden anywhere in the jungle on the slopes above us or very possibly was distributing its spores from some garden in Port Driseach. Other more uncommon species were *D. aemula,* one plant only, and a small number of tiny *A. scolopendrium* plants. In some places *B. spicant* was quite a feature, growing strongly to a very large size and one clump was, I think, the largest I have ever seen. We noticed that this plant was also to some extent anomalous with sporing on some of the sterile fronds as well as having a full complement of fertile ones. Both polypodies were noted in fair numbers and also *P. connectilis* in some places.

We finished the week with a list of 32 species of which 5 were fern allies but there are others recorded for the area which we did not see – *Cryptogramma crispa, Lycopodium alpinum, L. clavatum, Isoetes lacustris, Equisetum palustre* and *E. telmateia,* while two not recorded for the parts we visited, *Polystichum setiferum* and *Athyrium distentifolium*, are undoubtedly there for the finding.

The following are records not included in the *Atlas of the British flora* –

Nat Grid ref.		
16/97.	9977	Allt Faoileinn – *Gymnocarpium dryopteris, Hymenophyllum wilsonii, Polystichum aculeatum.*
	9978	Craig Cottage – *G. dryopteris, H. wilsonii, P. aculeatum, Selaginella selaginoides.*
	9379	Kilfillan – *G. dryopteris, H. wilsonii, P. aculeatum.*
	9974	Port Driseach, Rubha Ban – *Dryopteris aemula, H. tunbrigense, Osmunda regalis.*
	9974/75	Port Driseach, West Glen – *D. X tavelii, H. tunbrigense, H. wilsonii.*
16/98.	9383	Ballimore – *Asplenium ruta-muraria, A. scolopendrium. D. carthusiana.*
	9583	Carn Ban, corrie near – *A. scolopendrium, A. viride, D. abbreviata, G. dryopteris, H. wilsonii, L. selago, P. aculeatum, S. selaginoides.*
	9487/88) 9587/88)	Loch Fyne near Carn an Tilgidh – *A. ruta-muraria, S. selaginoides.*
26/07	0973	Brackleymore – *D. aemula.*
	0176	Fearnach Bagh – *A. adiantum- nigrum.*
	0975	Inverchaolain – *A. adiantum-nigrum, A. ceterach, A. scolopendrium, D. X tavelii.*

Nat Grid ref.		
26/08.	0583/84	Loch Striven, head of – *Cystopteris fragilis, Equisetum sylvaticum, H. wilsonii, Phegopteris connectilis.*
	0782/83	Loch Tarsan – *D. abbreviata, H. wilsonii, P. connectilis.*
26/17.	1571	Burnmakiman Burn – *D. aemula, D. austriaca, H. tunbrigense, P. connectilis, P. aculeatum.*
	1571	Dunan – *D. austriaca.*
	1070	Knockdow – *D. austriaca.*
	1778	Loch Loskin – *D. austriaca.*
26/18.	1484,1584	Pucks Glen – *D. aemula, D. X tavelii.*
26/19.	1994	Carrick Castle – *A. ruta-muraria.*
	1096	Glen Branter – *A. scolopendrium. D. X tavelii.*
	1691	Glen Finart near Sligrachan – *A. scolopendrium, D. aemula.*
	1996	Loch Goil – *D. assimilis, H. tunbrigense.*
27/10.	1705/06	Gleann Beag – *A. viride, C. fragilis, D. abbreviata, P. connectilis, P. aculeatum.*
	1800	Lettermay Burn – *C. fragilis, P. connectilis, P. aculeatum.*

Barmouth, Gwynedd – 6/13 September. After the small attendance at the Argyll meeting it was very pleasing to get a good turn-out at this meeting and 15 members and friends assembled on Saturday 6 September or for varying periods during the week, at our centre the Plas Mynach Hotel in Barmouth. Those attending were Peter Benoit, Matt Busby, Jimmy Dyce, Alf and Kay Hoare, John Jones, James and Margaret Merryweather, Martin and Hazel Rickard, Kay Stevens, Bob Trippitt, Anne Uden and Tony and Barbara Worland. Martin Rickard was our leader and with the help of Peter Benoit who lives in Barmouth gave us a most interesting week. The weather was very mixed, starting sunny and warm on the first weekend but thereafter turning cold and wet and there were few if any days on which we did not have some rain – on one day it was excessive and on others it was accompanied by strong bitter winds on high ground which made climbing unpleasant.

The very rare Killarney Fern has been recorded for this corner of Wales and on Sunday our leader decided to break us in gently by concentrating on a hunt for it on lower ground north of Harlech where it has been known from one locality. Other suitable habitats exist in which this fern could be quietly growing so our hunting was planned to take in some of them but it may be needless to add that we were not successful in our quest. The one locality known from about 1875 when it was found by the well-known botanist Backhouse, seems to have had a precarious existence ever since, growing at the back of a small dark cave behind the water in a small hillside stream, and producing only a very few small fronds. Being on private property has probably helped it to survive for so long. During our meeting in Snowdonia in 1961 Evan Roberts told us that when he had visited the fern earlier in the year it had only one frond and Peter Benoit has been unable to find any since 1968. During our visit he crawled into the tunnel-like cave covered with a waterproof sheet and examined the habitat closely with the aid of a torch but could find only some mosses looking somewhat similar in size and colour to the fern fronds and these would appear to have misled more recent visitors. There is virtually no possibility that the rootstock, a creeping one, may be still alive and able, after the long lapse of time since the last definite confirmation of life in 1968, to produce more fronds.

On the way north from Barmouth we stopped near Harlech to see a colony of *Asplenium billotii* growing on a roadside wall. It is a fairly common fern of the area and is so plentiful around Barmouth that it was called the Barmouth Fern and well-known by this name to the many visitors to this popular resort in Victorian times when the fern craze was at its height.

Beyond Talsarnau a very steep narrow winding road took us up into the hills to the church at Llandecwyn, passing on the way one of two small lakes. We split into two parties, one walking to the higher lake, Llyn Tecwyn Uchaf, and the other eastwards down the Llandecwyn Glen. On the open high ground the slopes were colourful with the heather and autumn-flowering gorse intermingled in full bloom and along the stream which we followed from the Llyn down to the main road below,were many ferns. The more common large ones were well represented, *Athyrium filix-femina, Blechnum spicant,* the three bucklers *Dryopteris austriaca, D. filix-mas* and *D. pseudomas, Oreopteris limbosperma* and of course *Pteridium aquilinum,* and on the rocks grew *A. trichomanes, A. adiantum-nigrum* and some colonies of *A. billotii.* In the damper places lower down there was *Phegopteris connectilis* and the two polypodies *P. interjectum* and *P. vulgare* as well as some *D. carthusiana* in a marsh from which *Osmunda regalis* is recorded but was not seen by us. The fern ally *Equisetum fluviatile* was found here and in the Llyn above was *Isoetes lacustris.* The other party down in the wooded glen found abundant woodland ferns, *P. connectilis* was common and some *A. scolopendrium* was noted, as well as *Polystichum setiferum.* Descending to the lower Llyn Tecwyn Isaf, species were fewer and we recorded only five of the common ones with additionally *I. echinospora* and *E. fluviatile* in the Llyn and on nearby wet ground *D. carthusiana.* On the return journey near Harlech we paused for a short time to see by the roadside a flourishing colony of the hybrid *E. X litorale,* a cross between *E. arvense* and *E. fluviatile.*

A wet day on Monday reduced our active members and the few of us who braved the elements ranged inland as far as Devil's Bridge and Cwmystwyth in the vain hope that weather conditions would be better away from the coast. Little serious hunting was done in the wet undergrowth of the ravine near Devil's Bridge but we recorded most of the large-growing woodland ferns as well as some *Gymnocarpium dryopteris, P. vulgare, P. connectilis, P. aculeatum* and *Hymenophyllum wilsonii.* At Cwmystwyth we visited known colonies of *A. septentrionale* in the village and on a roadside wall on the high ground to the west. On the way back near Machynlleth we stopped in a side road and Peter showed us a colony of the hybrid between the diploid and tetraploid forms of *A. trichomanes.* The hybrid plants were very large-growing and near them was a colony of the diploid densely covering a section of the roadside wall with close-growing drooping fronds. The few other species noted here included the hybrid polypody, *P. X mantoniae.* Continuing our homeward journey northwards we were shown, along a road near Dolgellau, what Peter considers is the hybrid between *D. abbreviata* and *filix-mas;* it certainly looked convincing and *D. abbreviata* was a frequent plant nearby.

It was another wet day for a good deal of the time on Tuesday when we were joined for the day by Kay Stevens who lives at Tywyn and it was decided to try to re-establish the record for *A. X alternifolium* which was seen by us north of Llanelltyd during our 1961 meeting but has seemingly disappeared since. It would appear that we were the last people to see the two plants of the hybrid growing here and there were suggestions in some quarters that we were responsible for removing them. I take this opportunity to deny emphatically the allegation — we were shown the plants by one of our number, Ronald Payne, and left them untouched. We noted that one of them was growing in scree in a rather vulnerable position and it would have been very easy for a non-fern climber clambering up the scree to dislodge and kill it. During the 14 years since our last visit the locale has changed a lot with trees covering most of the ground and it was very difficult for me, the only member present who saw the ferns in 1961, to pinpoint the spot even though I still retain a clear mental picture of it — the wet miserable conditions as we pushed our way through the trees did not help! We listed 15 ferns from the hillside including *Cryptogramma crispa, P. interjectum, P. vulgare, A. adiantum-nigrum, A. ruta-muraria* and the parents of the missing hybrid, *A. septentrionale* and *A. trichomanes.*

In dryer weather during the afternoon we crossed to the south side of the Afon Mawddach estuary and our first stop was in the densely wooded valley of Coed y Gribin. This was a fern paradise with 16 species represented, most of them in abundance, on the rocky slopes. Only a few plants of *P. setiferum* were seen, some *P. connectilis* as well as *A. scolopendrium,* and on walls lower down the valley were *A. trichomanes* and *A. ceterach,* the latter in very small numbers. At the bottom of the valley both hymenophyllums grew on the rocks by the side of the stream. Further down the estuary at Arthog we clambered up a wilder steep valley, very rocky, with a series of cascades tumbling down it. It was a difficult place to hunt but we found 14 species which included in addition to the commonplace ones, a colony of *D. aemula* and some *P. setiferum.* The habitat looked ideal for the filmies and it was surprising to find only a very few colonies of *H. wilsonii.* Our last stop on the way home, on the north side of the estuary, was at Cutiau where we climbed the hillside by a very steep zigzagging lane and noted 13 fern species. One small plant of *A. scolopendrium* was seen, some colonies of both the polypodies with the hybrid *P. X mantoniae, A. billotii* and *A. adiantum-nigrum,* and diploid and tetraploid *A. trichomanes* with again some plants of the hybrid between the two forms.

Old records for *Woodsia ilvensis* were drawing our leader irresistably to Cader Idris and with the return of finer weather on Wednesday our minds were quickly made up to spend the day on the mountain. Travelling to Dolgellau we struck directly south on narrow country lanes up the Afon Aran valley to Bwlch-coch and continued on foot up to the source of the stream in Llyn Aran which is tucked away in an amphitheatre of cliffs and screes on the north side of the mountain — old records give this locality as a station for the woodsia. On the first part of our climb there were very few ferns, which did not appear in any quantity until we reached the beginning of the rocks and screes. Over the whole area of cliff, scree and grass slope round the Llyn we listed 14 ferns and 4 allies. Abundant *Lycopodium alpinum* and *L. selago* grew among the grass and on the rocks with occasional colonies of *L. clavatum*, and the small but lovely *Selaginella selaginoides* was also seen a few times. The large ordinary ferns *A. filix-femina* and *D. austriaca* were common in the boulder screes, as was *B. spicant* which was also happy on the grass slopes along with *O. limbosperma.* Only very occasionally was *D. filix-mas* seen, and *D. pseudomas* was completely absent but frequent *D. abbreviata* was noted. Some *C. crispa* grew on the screes and a few small colonies of *P. connectilis* on the rocks but only one small patch of *G. dryopteris* was found higher up by our more vigorous climbers. In a very few places *Cystopteris fragilis* and *A. viride* were seen on the rocks and *A. trichomanes* was equally rare. The odd plant of *P. vulgare* appeared at times in rock crevices and two small colonies of *H. wilsonii* were found. Our party split up when the rocks and screes were reached, a few climbing high on the cliffs while the rest were scattered around the amphitheatre working mostly on the screes and lower rocks. On comparing notes later it was found that the ferns and allies recorded were common to the whole area. As well as the woodsia which was not found we hoped to see *D. assimilis* and some doubtful plants were looked at, rather like this fern but not sufficiently so to be confidently identified.

On the way back we stopped to explore the Glen of Aran, the lower part of the valley not far from Dolgellau, which in Victorian times was a popular beauty spot much frequented by the monied holiday makers at Barmouth. It is a deep wooded ravine, dark in places, down which the Afon Aran cascades in a series of many falls, and ferns grow in great abundance but the 11 species seen were mostly the large-growing ones. It was a perfect habitat for *H. wilsonii* which flourished prolifically on the wet rocks but there was no *H. tunbrigense* which could have been even more at home among the spray from the falling water. Some *P. connectilis* was noted and some *P. vulgare* and on the small bridge at the head of the Glen was a colony of *A. trichomanes*.

Another mountain we were keen to revisit was Moel Hebog in Snowdonia and in spite of gloomy weather predictions on Thursday we set off, travelling west from Portmadoc and up the Afon Dwyfor valley from which there is a very easy approach and ascent to the high ground. A bitterly cold gale was blowing on the heights accompanied by heavy showers and thunder and it was no day for climbing on the rocks exposed to the fierce buffeting of the wind so most of us did not tarry very long and left the hunting to a few of our younger and more active members who, as well as wanting to visit the colonies of *Woodsia ilvensis* on the mountain, were anxious to locate a plant of *P. lonchitis* seen on a previous visit by Tony and Barbara Worland. They searched in vain for this fern but were consoled by the woodsia. In spite of weather conditions we recorded 23 ferns and 5 allies growing on the mountain and added a new spleenwort, *A. septentrionale*, to those already listed on previous visits, *A. adiantum-nigrum, A. ruta-muraria, A. trichomanes* and *A. viride.* We saw *D. aemula*, a very rare plant in this unusual habitat, *D. abbreviata, C. crispa, C. fragilis, P. connectilis, A. scolopendrium, P. interjectum, P. vulgare, P. aculeatum*, some *H. wilsonii* and of course the large-growing common ferns. The three lycopodiums *L. alpinum, L. clavatum* and *L. selago* were noted along with *S. selaginoides*, and another new record for the mountain was *E. sylvaticum.*

We had good weather for our last day on the Friday but did not go far afield, only north for a few miles to Llanbedr and inland up the Afon Artro valley. Stopping first at the junction with the Afon Cwmnantcol we explored up this wooded valley as far as the dam which was built in the 1920s to supply the neighbourhood with electricity. The dam completely fills part of the very deep ravine and destroyed what used to be one of the most interesting bryophyte sites in the district. Ferns were not very plentiful as most of the woodland seems to be beech, in the dense shade of which very little grew except in the more open places. Only a few woodland species were seen in addition to *P. vulgare* growing on the walls of the dam. A few colonies of very good typical examples of a fern rather like a dwarf-growing *D. austriaca* were found. This fern, a creeping one, was first discovered by me in September 1966 in the north of Scotland on Crannoch Hill, Cullen, Banffshire. It grows on open ground under trees in friable leaf and pine-needle soil and forms clones by means of smooth, shiny-brown thin creeping stolons which throw up widely spaced fronds before settling again to form crowns. It is usually dark-scaled like *D. austriaca* but often I have found pale-scaled plants, and the growing points are bright-green similar to those of *D. carthusiana.* The intermediate characters would appear to indicate a hybrid origin but it is very different from *D. X deweveri* the recognised hybrid between the species. In similar habitats throughout the country, the Lakes, West Scotland, South-west Scotland, Snowdonia, even in the south and west of England, and now in the west of Wales I have noted and drawn attention to similar clones of this dwarf-growing fern and in all cases have found them to have the same creeping habit. I am hoping that our member, Mary Gibby, who is at present working on the *D. austriaca/carthusiana* complex under the direction of Dr Stanley Walker will eventually come up with some definite answers to the problem posed by this fern.

We continued up the valley to the Coed Crafnant, a most interesting wood growing on a steep and wet rocky hillside, facing north-west and ascending in a series of terraces. The rocks are densely covered with mosses and the flat terraces are in many parts very boggy and covered with sphagnum moss. Ferns were abundant and some hours were spent exploring the area, scrambling up and over rocks many of them dripping wet and forming ideal habitats for an extensive profusion of *H. tunbrigense* and *H. wilsonii*, the former being for once the more common. Not a very large number of species was seen, only 13, and some were in very small numbers such as *A. trichomanes*, occasional on the dryer rocks, and one small colony each of *P. connectilis* and *P. setiferum.* Only a few of the larger ferns were common, *A. filix-femina, D. austriaca,* and in great quantity *B. spicant.* In more open ground we noted *O. limbosperma* and occasional *D. pseudomas*, and both polypodies were seen, some on rocks and good colonies on trees, but the filmy ferns, particularly *H. tunbrigense* gave us the most pleasure.

We had time for one more hunt before calling it a day – and a week, and visited the sand-dunes on the coast at Morfa Dyffryn a few miles north of Barmouth. Here we found quite abundant *E. variegatum* and a fine colony of what is claimed to be *Ophioglossum ambiguum.* It looked very much like the more common *O. vulgatum* which Peter Benoit was inclined to think it was but Martin Rickard collected some specimens and later demonstrated to our satisfaction that the colony is indeed *O. ambiguum.* This is the first time I have seen this fern in the field and it was very satisfactory to be able to remove one more name from the exceedingly short list of British species still not seen by me in their wild habitats.

During the evening of our last day we were very pleased to receive a visit from a local member, John Jones, who was unable to join us during the week in the field. He has been doing some good work on his own among the ferns in his area and brought some very interesting fern exhibits for us to see. It was gratifying to bring him into touch with Peter Benoit and since they live not too far distant from each other we hope that the fern knowledge of this part of Wales will benefit from their joint activities. It was most satisfactory to have Peter with us the whole week and we are most grateful to him for his considerable help in introducing us to habitats and imparting information which enabled us to see and learn so much more than we could otherwise have done. During the week a total of 32 ferns and 3 unnamed hybrids were seen and 11 fern allies, many of them rare, but for once no fern varieties were found.

The following are records not included in the *Atlas of the British flora* –

Nat Grid ref.		
23/54.	5547, 5647	Moel Hebog – *A. septentrionale* (pre-1930), *C. fragilis, D. abbreviata, D. aemula, H. wilsonii, E. sylvaticum, S. selaginoides.*
23/61.	6414	Arthog Falls – *D. aemula* (pre-1930).
23/62.	6128	Coed Crafnant – *P. setiferum.*
23/63.	6237	Llandecwyn – *D. carthusiana.*
	6338	Llandecwyn – *A. billotii.*
	6337	Llandecwyn Glen – *P. setiferum.*
	6337	Llyn Tecwyn Isaf – *D. carthusiana.*
23/71.	7213/14) 7313/14)	Cwm Aran – *D. abbreviata.*
	7417	Groes-lwyd – *D. abbreviata.*
	7517	Tyn-y-Clawdd – *D. abbreviata.*

A DAY IN THE DOLOMITES

M H Rickard

On the 25 June 1975 my wife and I had the good fortune to spend a single day botanising in the Dolomite region of the Alps in Northern Italy. Some of the fern flora here was particularly rich and I thought an account of our discoveries might be of interest to readers of the Bulletin.

Our first stop was in a minor road in the Val Pettorina above Caprile, which passes through the village of Sottoguda at an altitude of 1252 metres. Within a few hundred yards of the village the road enters a very narrow deep gorge festooned with many ferns and flowering plants including, abundantly, the blue flowered *Clematis alpina.* Here we stopped the car and were delighted to find within a few feet several fern species, the most notable being *Dryopteris villarii* subspecies *pallida* looking remarkably like *D. carthusiana* which just to confuse was also abundant in the gorge! Intermingled with the *D. villarii* on the rock faces were *Gymnocarpium robertianum, Cystopteris fragilis* and *C. regia,* the last looking very typical and instantly separable from *C. fragilis.* Walking a few yards further up the road various flowering plants were distracting us but not for long, for on climbing a little above the road I found in a sheltered spot a curious little *"C. fragilis"*, tufted with narrow fronds. I stopped, looked at it twice and picked a frond, and then much to my delight realised it was not a cystopteris but a woodsia, in fact *Woodsia pulchella*, a rare species in Europe almost confined to the Dolomites. Having satisfied myself as to the identity of the woodsia I began to look for more and was rather horrified when I discovered I had walked past a lot, dismissing them all as *C. fragilis*!

All this time I had been trampling *G. robertianum* underfoot and was not paying much attention to it until, happily, a single frond slightly different caught my eye. Monotonous it may sound, but once again I was delighted because I had found that British alpine treasure, *Cystopteris montana*! By this time my day was already made, but before I was able to search for more plants of *C. montana* I was distracted by a shout from below just audible above the noise of the stream. Equally as exciting as my finds, my wife had discovered a flourishing colony of *Cypripedium calceolus* in full flower. This must be both the most beautiful and rarest British wild flower and we duly admired it for some time before continuing up the gorge, passing roadside cliffs dotted with more of the woodsia and overgrown screes full of *C. montana* and more of the cypripedium. In damp sheltered places both *Selaginella helvetica* and *S. selaginoides* were common and on the cliffs three spleenworts, *Asplenium ruta-muraria, A. trichomanes* and *A. viride* were abundant. For the record, the other ferns seen in this gorge were *Athyrium filix-femina, D. filix-mas, G. dryopteris, Polypodium vulgare* sensu stricto and the horsetail *Equisetum arvense.* Other notable flowering plants which I was able to identify were *Rhododendron chamaecistus, Primula auricula* and *Hepatica nobilis*, along with some androsaces and numerous species of saxifrage not yet in flower.

The number of rare and interesting plants we had seen here was enough to fill a week in lesser places but here it took until lunchtime and in the afternoon we were ready to move higher up into the mountains. Along the road to our next stop, the Passo Fedata, the alpine meadows were a picture as usual. Of note we recorded from the car three species of primula – *P. auricula, P. farinosa* and *P. longiflora,* but we saw no ferns before the Col was reached. Here at 2057 metres much of the ground was still covered with snow, nevertheless *Equisetum variegatum* was conspicuously abundant by the side of a small lake, and on the north facing slopes above *Lycopodium selago* was occasionally seen. More interesting though were the flowering plants of which few were in bloom but I was thrilled to find *Primula minima* in full flower as well as *Soldanella minima.* It was very cold here and not a little dangerous among the enormous snow-drifts so we soon moved on.

From the Col we drove westwards at first, eventually turning north to climb the Passo Sella. During the morning in the gorge at Sottoguda I had hoped to find *Asplenium seelosii* and I was still on the lookout for a suitable locality; here on the cliffs towering above us I thought I might be lucky. After a few minutes scrambling up the relatively barren screes, passing abundant *Daphne striata, Botrychium lunaria* and an androsace, possibly *A. carnea,* the cliffs were reached. These were at about 2100 metres and formed the southern edge of Piz Ciavazes of the Sella Gruppa and they in turn proved rather barren. However I soon stumbled across wall-rue and my hopes rose as I remembered reading somewhere that this was a species with which *A. seelosii* was often intermixed. My optimism was soon justified because there, a little further on, were a few very stunted plants of *A. seelosii* most of them with fronds less than 1 cm long, growing in small "caves" a few centimetres across in the hard dolomitic rock.

With this discovery my day was finally complete and I returned to the car to drive to our hotel wondering at the richness of the flora of an area that allowed anyone unguided to stumble across so many treasures in such a short period of time.

PROFESSOR R E HOLTTUM, President of the BPS, 1958-60

H L Schollick

At the end of July this year the eightieth birthday of Professor Holttum was celebrated by his friends and colleagues at a reception and dinner at the Kew Royal Botanic Gardens, organised by Kew, the Linnean Society and ourselves. Our Society made its contribution by publishing on that same day the latest issue of the Fern Gazette which is dedicated to him.

It seems to me (and the idea has also been suggested by others) that many of our members who have not met him at AGMs and on excursions might like to have some permanent record of his distinguished career and learn more about his widespread contribution to the study of ferns and many types of tropical plants. I have to admit that before the Kew celebrations I was unaware of his great contributions to the taxonomy of tropical plants from A to Z, from Asplenium to Zingiberaceae which I am told is the ginger plant family.

For much of what follows I am indebted to a collection of appreciations written by his friends and colleagues and presented to guests at Kew. I have also drawn on a self-portrait in *Flora Malesiana Bulletin*, April 1975.

After a distinguished Cambridge career interrupted by war service with the Society of Friends Ambulance Unit from 1916 to 1919, he went out to Singapore Botanic Garden in 1922 and took charge of the Garden three years later and became Director in 1926. He gradually realised that the 'general study of fern taxonomy was very unsatisfactory and that his Cambridge studies had been of little use as an introduction to the study of tropical plant taxonomy of any kind and of ferns in particular' and so he turned to what became his life work in many fields.

In Singapore there was general public interest in gardening but few people had any knowledge of native plants. "I realised that I would be judged by the appearance of the garden and that horticultural practice needed to be improved. We formed a Garden Society and held Flower Shows, and this finally led to my writing a book on gardening in Malaya". In the meantime he was communicating with Christensen and Copeland, the great fern taxonomists, and studying the ferns of Malaya, and during the Japanese occupation when relieved of administrative responsibility, he prepared a systematic account of the ferns of Malaya with detailed drawings which ultimately appeared as Volume 2 of *The Revised Flora of Malaya*, the introduction to which can be profitably read by many of our members.

In 1949 he resigned from the post of Director of the Gardens and was appointed Professor at the new university. His experience with students who were almost totally ignorant of botany led him to consider how the subject could be introduced in terms of local plants which they could see, and as a result he wrote *Plant Life in Malaya* as a simple introduction to the subject which had never been taught adequately in local schools. In 1954 he returned to England and settled at Kew where he has devoted most of his time to ferns, and those of our members who have visited Kew with the Society have enjoyed the benefit of guided tours by him, and always, as well as his passion for scientific exactitude, we have been aware of his feeling for the ferns as a plantsman.

At the Kew celebrations his portrait was presented to him and other gifts came from all over the world. The reception and dinner were completely informal, speeches were few and brief, but everything expressed admiration for his achievement and the affection that those present had for Mrs Holttum and himself. At the dinner the Professor turned the tables on the two speakers by turning his deafness to his advantage, for he began his reply by saying "as you know, I have not heard a word that the speakers have said so I can say what I like", and he did and everybody was happy.

AMONG MALAYAN FERNS WITH PROFESSOR HOLTTUM

Jack E Craig

Three years ago I had the most honoured experience of meeting Professor R E Holttum, the venerable dean of Malayan ferns and monocots. Being a horticulturalist and a bit of a plantsman with a keenness for ferns, his book *Ferns*, published as Vol 2 of the *Flora of Malaya*, had long been my constant guide in the study of these fascinating plants.

The week preceding Professor Holttum's arrival from Kew in connection with his work on fern sections of Flora Malesiana, my wife and I with some members of the Penang Botanical Garden staff made a collecting trip to Kaki Bukit, a country village in Northern Malaya near the Thai border. The object of our trip was to photograph and, if possible, to collect a few specimens of *Platycerium wallichii* which was reported to occur in that locality. We found it growing around the village on huge rain trees on which it seems to have a special fondness for bare horizontal limbs 70 feet or more above the ground. We hired an Indian climber to bring down some specimens for us, a slow and dangerous task as the limbs of the rain trees, even at 70 feet, were so large that a man can scarcely reach half way round them. We found few small plants because commercial collectors had ravished the area a few months before our visit. Left were a good number of enormous specimens with nest fronds 40 inches high, clinging with such tenacity that removing them intact was impossible without the use of a knife to scrape them loose from their lofty perches. From time to time we observed one on more vertical limbs which had been swamped with growths of other ferns and epiphytes. In every case these plants were sickly and stunted, probably from too much water. One of the twice annual rainy seasons was just drawing to a close and the old fronds of even the healthy plants were heavily covered with brown spots. As any horticulturalist who has had experience in growing the larger more drought resistant platyceriums knows, such spots are danger signs produced by too much water. If a water-logged condition continues the plants soon rot away. This fern is unknown further south where there is more or less continual rainfall with no pronounced dry season. It seems certain that the limiting factor in its range is the presence or absence

A mature specimen of *Platycerium holttumii* growing on a 70 ft. high limb of an old rain tree. The nest fronds would measure at least 40 in. high.

Professor Holttum points out the reduced pinnae of *Pseudophegopteris paludosa*, a rare but locally abundant Thelypteroid species. On the right is his past student, Cheang Kok Choy, now Curator of Penang Botanic Garden. On the left is a group of Mr Cheang's students. In making herbarium specimens the Professor's predecessors often took the end portion of the frond only. As he points out, the frond tips of Thelypteroid ferns are quite similar. The lower portion showing the absence of the presence of reduced pinnae gives a more important clue to classification.

of such dry seasons although Professor Holttum says he has grown specimens in Singapore for years in a quite exposed location. Below the rain trees ran a drainage ditch, its grassy banks kept neatly trimmed like a lawn, and among the clipped grass grew many plants of *Hemionitus arifolia.* Collecting this fuzzy fern with arrow-shaped fronds was a satisfying treat as we had collected the only other member of its genus, *H. palmata,* at Vila Hermosa in Mexico some years previously.

The country around Kaki Bukit is covered with huge limestone outcroppings which stand like gigantic ships across the landscape. These limestone mountains are covered with a tangle of tropical vegetation which continually drops leaves to replenish the humus supply of the rough limestone pockets and crevices, an important factor considering the very short time that humus lasts in the lowland tropics due to stepped-up bacterial action. The soil of Malaya is a thick yellowish clay, ideal for tin-mining but intolerable to the roots of most plants, expecially during the rainy season. It is only in such pockets and crevices in the limestone that many rare and choice plants find the conditions of perfect drainage and adequate fertility for their liking. On the limestone *Doryopteris ludens* grows in association with a wealth of orchid, begonia, gesneriad, alocasia and kaempferia species. From time to time occurred a clump of the delightful miniature fern previously known as *Adiantum flabellatum,* now called *A. malesianum.* The Malayan plants are very fuzzy compared with South African plants of *A. flabellulatum* which I grow. In the clay soil between the limestone outcrops in deep shade grew *Lygodium polystachyum* with very hairy most un-lygodium like fronds, and in more sunny locations *L. circinnatum* with broad waxy pinnules. The largest member of its genus, it often grows 30 feet high into the trees.

Professor Holttum's arrival in Penang created much excitement and his presence was in great demand. As past Director of both the Singapore and Penang Botanic Gardens and as author of a host of books on Malayan gardening, ferns, orchids, gingers etc, his name is a legend to all involved with the study of the Malayan flora. On a tour of Penang Botanic Garden he proclaimed that the two large platycerium specimens from our Kaki Bukit trip are properly termed *P. holttumii.* All previous accounts of *P. grande* and *P. wallichii* occurring in northern Malaya were false and such plants are properly attributed to this recently described new species which bears the Professor's name.

We met Professor Holttum at Cameron Highlands, a mountain resort at 5000 feet in elevation with a climate of perpetual spring. The area is a fern lover's paradise with many rare and interesting species occurring in abundance. The highlight of our visit was a trip to a cloud forest with the Professor and Mr Cheang Kok Choy, one of his previous students who is now curator of Penang Botanic Garden. At 77 years of age the Professor is spry and sure footed. He was not to be left behind by younger members of the group even on steep mountain trails. He had visited the same mountain peak 34 years previously and remembered its every detail. His knowledge of Malayan flora is encyclopaedic and it rather leaves one agasp to realise that he was here studying the flora before one was born! He generously shares his knowledge and experience freely with those interested. He is now working on the Thelypteroid ferns of which there are nearly 500 species in Malaysia and the Pacific. His task of classifying this large group is an arduous one. Many of its members are weeds, inhabiting sunny roadsides and clearings. My wife and I recognised several of the Cameron Highland species as being identical to common roadside ferns we were familiar with from our years in Japan. To add to the confusion of classification, it appears that some are complex hybrids in a state of flux.

As we climbed the mountain, epiphytic rhododendrons, *R. javanicum, R. malayanum* and *R. jasminiflorum* made bright and often fragrant spots of colour in the trees along with a host of epiphytic orchid and fern species. The Professor spotted a gigantic specimen of *Cibotium barometz* sending up 15 feet fronds from a large prostrate crown thickly matted with russet wool. Clinging to the moss-covered tree trunks and branches were elaphoglossums, crypsinus, lindsayas, polypodiums, vittarias and many other ferns in variety. Along the trail numerous species of Thelypteroid ferns were the Professor's main interest. Fascinating when viewed in detail beneath a lens, their value to the horticulturalist is decidedly limited.

Patches of sphagnum moss now appeared in larger and ever increasing numbers and Professor Holttum explained that we were now in the cloud forest proper. Cloud forest appears on breezy mountain ridges almost continually swept by clouds which keep everything wet with their condensation. The moist cool conditions create a fairyland of exotic flora. The weird fern *Lecanopteris carnosa* covered the twigs and branches of the dwarf trees with its ant-inhabited strangely swollen rhizomes. *Dischidia coccinea,* another ant-inhabited plant, was also present. Its fuzzy purplish cup-shaped leaves with red lily-of-the-valley bud shaped flowers encrusted twigs and branches of the dwarfed vegetation in full sun. The slightest disturbance of either plant sent droves of ants swarming over one, stinging and biting with all their might. *Nepenthes sanguinea* also grew in great profusion, its ample greenish pitchers splotched purplish or maroon in the shade of the scrub. On vines sent up into full sun the same plants produced striking snow-white pitchers, rimed and specked rose-pink. Such bizarre flora offers wonderful examples of adaptation to rain-leached, nitrogen deficient conditions of such mountain ridges. In full sun grew heavy clumps of strikingly colourful *Blechnum vestitum* with new waxy coppery red sterile fronds. The fertile fronds were tall, scaley and stiffly erect with narrow pinnules. Another exotic fern, *Plagiogyria tuberculata,* with its crown and new fronds covered with a layer of slimy gelatinous substance appeared here and there. The stems of its new fronds extended whitish aerophore breathing tubes through the jelly-like covering.

Professor Holttum is a staunch conservationist. He frowns upon the wanton destruction and unscrupulous collection of rare plant species. In Malaysia the danger signs are already at hand that much of the exotic flora which he has spent his life classifying may soon become extinct. Best wishes to Professor Holttum on his work on the Thelypteroid ferns for *Flora Malesiana.*

HOLTTUM FERNS AT KEW

J R Woodhams

In this year of Professor R E Holttum's 80th birthday it is interesting to record some of the plant material collected by him to enrich the living collections of the Royal Botanic Gardens at Kew.

Amplifying his wide interests and enthusiasm for the plant kingdom the accessions donated to Kew are by no means all ferns, although these make up the main bulk, and in checking through the master ledgers for the tropical department it would appear that the first item attributed to him was a seed sample of *Impatiens oncidioides* collected at Frasers Hill, Malaya and recorded as received on 15 April 1929. This was followed by an entry for two roots of *Zingiber ottensii* after which came varied collections of nepenthes, rhododendron, senecio and gesneriads. The first record of fern material would appear to be spores of four ferns received on 10 September 1946, accompanied by a letter giving ecological notes and stating temperature requirements, etc. One specimen, *Oleandra neriiformis,* was obviously of more than passing interest to him at that time and I quote – "The young plants of oleandra I have never seen. They might be interesting and show ancestral characters ———. They do not like Singapore or I would try to grow some there". Closely following this consignment were spores of six more fern species received on 18 November 1946, comprising plants in the genera cyclopeltis, cyclosorus, drynaria, osmunda, pleocnemia and stenochlaena.

During the years 1951-1953 further pteridophytes arrived, some as spore samples but the majority as young plants. Many interesting species were included though it must be said that some, through their intolerance of cultivation, were destined for a somewhat premature end, *Schizaea digitata* and *Gleichenia linearis,* both received in 1951, being two such plants. The following year five separate consignments arrived at Kew, originating from the Professor's field collecting around Frasers Hill and the Taiping Hills area; the last sending had some 109 different taxa included. Among those sent in 1953 were *Christensenia aesculifolia, Lemmaphyllum accedens* and *Schleroglossum debile.* In 1954 a further collection of fern plants came from the neighbourhood of Tahan River in Pahang, Malaya, from Kedah Peak and from the Cameron Highlands.

With the exception of a few young sporophytes received from the University of Malaya in 1956 we had to wait for further material until the Professor's return to the tropics at the end of 1957 through to the spring of 1958. Plants arrived from Bogor in Indonesia, Padang Highlands in Sumatra, Cameron Highlands in Malaya and Kuching in Sarawak. One of these sendings contained 100 specimens and another more than 70, and plants other than ferns sent included nepenthes, orchids, gingers, globba and alocasia species. The spring of 1960 saw the Professor back in Malaya, and Kew was to benefit once more from a shipment consisting of eight genera, including *Asplenium paradoxum, Cyathea trichoderma, Loxogramma subcordata, Lygodium salicifolium* and *Tapeinidium pinnatum.* An interesting gesneriad, didymocarpus, also arrived plus a plant of camptandra (Zingiberaceae). One specimen was credited to him in 1962, *Pyrrosia petiolosa,* initially entered as drymoglossum. This may well have originated from material sent to the herbarium and grown for identification.

The tropics were again visited during 1963. This time New Guinea came in for scrutiny and from this country so rich in the Filicales we received four consignments of young plants. Collections were made from several areas ranging from sea-level to an altitude of 8000 feet. On 15 August the first parcel arrived with approximately 16 genera, varying from tree ferns to the more lowly microgramma. The second followed on 22 August with collections made at Edie Creek near Wau in the Morobe district. A plant of *Dipteris novoguineensis* arrived with this parcel but it did not like our efforts in cultivation. Eight other genera were represented as well as a plant of *Viola betonicifolia* subsp. *novoguineensis.* A rich and varied package of epiphytic and terrestrial specimens came on 13 September containing plants of angiopteris and dicksonia through to pteris and tectaria, together with zingibers, cordylines and orchids. The last sending from New Guinea was a seed sample of an impatiens from the Western Highlands district. As this trip continued material of *Syngramma pinnata* came in from Queensland, Australia and in November 1963 a sending was received from China containing *Brainea insignis, Cyathea podophylla* and other genera including woodwardia, lindsaea, osmunda, onychium, etc.

Our records next show a couple of entries for 1965 and one for 1966 comprising equal numbers of ferns and orchids. On then to 1969 when a return visit was made to New Guinea and Malaya. We received two shipments from the former, the plants collected in the vicinity of Lae township and from the Mount Kaindi area near Wau, and also two batches from Malaya. Frasers Hill and Genting Highlands were re-visited for the first batch and the second came from Cameron Highlands, Taiping Hills and Penang Hill. Nearly 50 plants came from New Guinea and 70 from Malaya. The parcels from both countries contained epiphytic and terrestrial species including gleichenia, lindsaea, dipteris, lecanopteris and grammitis, again difficult species to cultivate but a happier state of affairs exists with other genera such as cyclosorus, davallia, tectaria and thelypteris.

A couple of rhizomeous species, *Phymatodes scolopendria* and *Rumohra adiantiformis* were propagated from material sent in for identification via Professor Holttum in 1972, while later in that year 10 spore samples comprising members of the Thelypteridaceae were brought back from his visit to India. The last recorded material to date is that of *Phymatodes sinuosa* and *Pyrrosia adnascens* retrieved from a sending of dry orchid material to the herbarium at Kew from Malaya.

Through Professor Holttum's work with the pteridophytes at Kew, a number of his colleagues and friends both here and overseas have sent in living material for cultivation in the fern section. Once established and the fertile stage reached, herbarium specimens are made and the names checked and verified. Much material has come in since his work on the revision of the Thelypteridaceae, with plants received from Michael Price – Philippines, Clive Jermy – collections from West Indies, New Guinea, Celebes, Java etc, Tony Braithwaite – collections from New Hebrides, F Badre – collections from La Reunion and Mauritius, plus a number of others.

Many of the Professor's introductions have grown on and flourished at Kew and a few are discussed below. Of some we have not managed to keep for longer than a few months or so, this time may well have proved long enough for herbarium specimens to be taken and verification of genera and species made.

Those who have visited Kew's tropical fern display glasshouse in recent years will have seen the large specimen of angiopteris at its centre, This originated from a sporeling included in the last sending from New Guinea in 1963. Also on display from this same consignment is a plant of *Goniophlebium subauriculatum.* From other despatches in that same year we have *Diplazium proliferum* with its many small plantlets produced along the upper midrib of the fronds, *Microsorium fortunei, Diplazium donianum, Lomogramma sinuata* plus *Bolbitis rivularis* and *B. naumanii* among others still growing well. From the Malayan consignments we have plants of *Asplenium paradoxum, Cyclosorus megaphyllus, Davallia divaricata, Lomariopsis cochinchinensis* and *Microsorium pteropus,* to enumerate but a few. Of the Sarawak shipment received in 1958 we have *Asplenium batuense, A. nidus, Aglaomorpha splendens* and another beautiful angiopteris which is receiving the Professor's attention at present. As mentioned earlier, the first record of ferns sent was in September 1946 and one plant, *Oleandra neriiformis,* we still have in cultivation growing quite happily on the peat block walling of the chapel section in House No 2.

Through the period from 1925 to 1940 when the war years brought disruption, various consignments of plants were sent to Kew from the Botanic Gardens, Singapore, and are credited thus in the records. This period covers the greater part of the Professor's Directorship of the Singapore Gardens and I gather from him that whenever members of his staff took a spell of home leave a Wardian Case, no doubt bulging with plants of all descriptions, accompanied them on the voyage to this country. I also learned that a number of small plants of *Dipteris conjugata* were specially potted and prepared for Kew, and that as a result of these efforts a good specimen of this rather curious fern was established in the tropical fern house at Kew. Sadly, it became one of the many species lost to cultivation during the war years.

I have learned much from Professor Holttum's weekly and at times more frequent visits to the fern section. For those of us who strive to maintain the collection he renews our enthusiasm and constantly reminds us of the importance he places on being able to examine and scrutinize the living plant.

FERNS, THE FERN GAZETTE, AND THE FUTURE OF PTERIDOLOGY

Dr C N Page

For the past 16 years the Fern Gazette (then the British Fern Gazette) has been ably edited by A C Jermy. Under his guidance what was formerly a magazine of around 30 pages devoted largely to British ferns and the culture of their varieties, has grown into a journal of world-wide ferns and fern allies, of high and much respected international standing. No such achievement could have been made without much hard work and sacrifice on his part and it is ample reflection on his unfailing enthusiasm to note that in this time the size and circulation of the Gazette have increased steadily year by year so that it is now a 50-60 page journal reaching 500 fern enthusiasts throughout the world. In doing so Clive Jermy has also helped stimulate and encourage many of a new generation of pteridologists, amongst whom the author is honoured to be able to number himself.

The changes in pteridology — notably the introduction of cytology into taxonomy and the increasingly strong general scientific interest in the group — has been reflected in the content of the Gazette. Thus whilst establishing an international reputation, many of the growers have rightly raised criticism in finding the content less easily digestible than formerly. The advent of the Bulletin has, to a large extent, filled an important gap here. But the interest of the scientist and the non-scientist are not, however, as divorced from one another as they may at first seem, for pteridology has reached a stage where amateur and professional can both contribute valuable knowledge.

Clearly, there are certain research areas which, because of the specialised facilities needed, are best left, or can only be left, to the professional to pursue. Such fields as cytology, laboratory culture, and the finer points of nomenclature probably belong here. But one of the greatest dearths of information in the literature is the recording of observations made in the field. These are observations on the habitats in which ferns grow, the situations and communities in which plants occur, and how the habitats differ, if at all, from those of other species locally. This lack of fundamental information on ecology of ferns is probably one of the biggest blanks in our knowledge of pteridophytes not just in Britain, but of the world as a whole.

I am aware that such observations on the ecologically extremely complex wet tropics will undoubtedly be equally complex to make. But field observation is an area where the non-professional pteridologist, closely knowing his plants or even some of them, can make valuable observations. For often he has more time to spend in the field than the professional, more time to just simply stop, look, observe and record what he sees. Many important and valuable observations have been made this way and many more should thus be not beyond the reach of the non-professional to make.

It is significant to point out that good observational work on ferns in the field has long been made by pteridologists, amongst whom Copeland and Holttum, on Philippine and Malayan ferns respectively, as well as Christ earlier, stand in pre-eminence. Field observations anywhere, and especially in the tropics, need the backing of good taxonomy — a position which Copeland and Holttum were able to give it. But the situation in most temperate floras, especially in Europe, is now at the stage where much of the taxonomy already exists. Adequate field data do not. The acquisition and recording of field information is likely to be one of the most important directions in which pteridology must go in the next ten to twenty years and this work, if done with accuracy, is as much open to the amateur as to the professional pteridologist to pursue.

As well as filling more gaps in academic knowledge, there are good practical reasons for urging a greater stress on ecological aspects of pteridology. Today there is in many parts of the world a real awakening of interest in the natural environment — together with a generally increasing awareness world-wide of the importance of conservation of natural resources of all kinds. Yet forests are still being removed wholesale in many of the better-wooded and especially wet tropical parts of the world, often long before any inventory of their species has been established, let alone any adequate knowledge of the biology of many of their animals or plants. Recently, it has been rightly said that one man with a bulldozer can now in one day undo the results of many millions of years of evolution and the World Wild Life Fund has appropriately chosen 1975/76 as the Year of the Tropical

Rainforest to draw the attention of the public at large to the world's decreasing natural forests.

Ferns, because of their diversity and predominance in the wet tropics and their general preference world-wide for woodland and forest habitats, are perhaps, almost more than any other group of plants, in an extremely vulnerable position for survival, and strong efforts are almost certainly to be needed in the near future if fern vegetation is to be conserved wisely. The Fern Gazette provides a medium for the recording and reporting of such field observations and has a significant role to play too, in pointing to such areas where information is most needed. In taking over as Editor-in-chief of the Gazette, I would like to encourage members to make good use of this facility.

Maintaining the high standards of accuracy and international repute to which the Fern Gazette has been raised by Clive Jermy, professional pteridological papers on morphological, cytological, taxonomic and phylogenetic aspects of pteridophytes will, of course, continue to be as welcome for publication as they always have been. But notes or articles on floristic, ecological and biogeographical aspects of ferns and fern allies, and their field biology, worldwide, are especially desirable. For adequate communication and knowledge in this area is likely to be one of the most valuable tools we are likely to have to ensure the survival of the very group of plants which we all, in one way or another, must consider ourselves fortunate to be able to study. Only with adequate recorded field knowledge will pteridology have a sufficiently accurate and well-informed voice to attempt to ensure that another generation of pteridologists can still say the same.

THE WAY THAT I WENT — With Acknowledgement to Robert Lloyd Praeger

H L Schollick

The Presidential Address given at the Annual General Meeting on 4 October 1975.

The non-botanists among you may wonder who this man was. Born in 1865 he died in 1953 and he published a book with this title in 1937, and it has been a favourite of mine since its publication. In the appreciation of him by Farrington published in 1954 it is described as a book of great beauty which will live on its own merits. It tells more of Praeger than all his mass of scientific writings. If you look at Simpson's *Bibliography of the British flora* you will see that on practically every subject of Irish botany he made some considerable contributions. He was a descriptive botanist and an amateur, but it was to him that Ireland owes its *Topographical botany* which he organised and carried through in five years. To me he is typical of so many of the people our fern cult is indebted to. A survivor from those early botanists who made *The Phytologist* in the 1840s and 50s such a treasure house, he himself admitted 'I have constantly felt the want of laboratory training in the natural sciences', and then goes on to admit his debt to the Belfast Field Club listing its members, their occupations and hobbies: Stewart, a trunkmaker, a geologist and a botanist; a linen manufacturer who was a geologist, a commercial traveller a palaeontologist, a doctor a microscopist, a photographer a natural historian, and of course the inevitable canon. How many parson pteridologists have contributed to the story of ferns ?

Praeger apparently was stimulated to an interest in ferns as a result of holidays in the Lakes and in 1885 was awarded a prize by the Belfast Field Club for the best collection of Ferns, Equisetums and Lycopods. In 1885/6 he collaborated with W H Phillips on a list of the *Ferns of Ulster* which was published in the Transactions of the Field Club. He and Phillips said in their introduction that they were the only people seriously interested and would welcome enquiries. This account reflects the sort of thing which goes on in our own Society. Phillips later published a list of his finds, many of them very fine things Phillips was born in 1830 and died in 1923 so he and Praeger cover the whole history of the fern craze. They must have known many of the founding fathers. E J Lowe records a carriage excursion with Praeger and Jones (of *A.ff.*'Clarissima' fame) into South Devon and they must have passed through Bristol so they must surely have called on Fox of Brislington, Gill of Lynton and probably Elworthy at Nettlecombe, and many of the others who were resident in the south-west. The connection with Lowe suggests that Praeger at this date had the sort of correspondence with other enthusiasts which Phillips mentions in his *Fifty Years of my Hobby.* Did Phillips introduce him to the new Pteridological Society in which their names follow the first Kendal group in the list of members? At that time our Society produced occasional papers which were read at the annual meeting and later published; Phillips produced in 1894 'Some results of fern hunting in Ireland' and this was followed with notes by Praeger on some Irish finds. Praeger's last contribution to our Gazette was in July 1949 'Ferns in Ireland' – a brief article on their distribution and his final publication was a short note in 1951 on 'Two puzzling horsetails'.

In Gazette Volume 1, no. 2, Stansfield gave some brief biographical details of the great enthusiasts of the nineteenth century. In July 1949 in the issue containing Praeger's final note, Robert Whiteside wrote of the founding of our Society in 1891 with some account of the individuals concerned. I have always been interested in the personalities of a particular discipline, whether it is history or theology, and now of pteridology and botany, and I wish that from time to time we would publish accounts of the nurserymen and amateurs of our times.

As you know, I have made a collection of fern books. These were for horticultural information and identification at first, and then I realised that classification also had a history and so I set out to collect the authorities. They did not cost quite so much ten years ago as they do now, and so I have Schuhr, Ray, Presl, Mettenius, Milde, Fee (the fifth volume only but it does cover what were known as the polypods), Moore folio and octavo nature printed, all the Hooker books and John Smith. The next stage was the realisation that the distribution of ferns was interesting and so I looked abroad and have Eaton's *Ferns of North America,* Beddome's works on Indian ferns, two of the earliest books on New Zealand ferns, Collins and Field, and of course Holttum's *Ferns of Malaya,* and no matter whether one is a scientist or a horticulturalist, I commend the introduction to that work as something that everyone ought to have read – a monument of lucidity and learning.

All this grew out of a bargain parcel of twelve hardy ferns for 25 shillings from Taylors of Bracknell, or in other words Mr and Mrs Healey. (I saw a male fern the other day at a garden centre offered for £1). A year or two ago Jack Healey visited me with the Society and on leaving told me that he had seen ferns in my collection which he thought had gone out of cultivation. I can think of no greater praise. A nineteenth century historian wrote 'The British acquired an empire in a fit of absence of mind' – I got a fern garden by accident! The bargains flourished and I bought more from Bracknell and then I discovered Reg Kaye while visiting him to buy dwarf conifers.

Fortunately I have one or two early fern catalogues from the nineteenth century, great prizes although not of great monetary value, in which I have marked all the ferns I have had. Some very choice things which I am hardly likely to see again except by the kindness of friends, have been lost, and this brings me to emphasise one of the oldest traditions of the Society and its predecessors. If you have a treasure which can be divided, share it with someone else; if you think you cannot grow it successfully lend it to somebody who might do so. Even as early as 1895 Lowe was mourning the great collections that had disappeared. Only too often when they are offered to national institutions they gradually disappear because a generation ariseth that knows not Joseph . Carbonell's collection went to Kew, but compare the Kew fern list of 1895 and 1906 and see how much has been lost, Fox's to the Bristol Botanic Garden which now has one osmunda and a few male ferns in the penguin cage. We all grow old and find our gardens too big. Cranfield's account of the rescue operation of Moly's ferns from Langmore shows what can happen (Gazette Vol 1 no 11). I have benefitted from older members of our Society such as Bernard Hayhurst, Jack Healey and Miss Tetley by the gift of choice things from their collections; but where do I put them?

The main axis of the garden is east/west and the garden area is 100 yards by 70 yards. Behind the house on the north and slightly west is a barn 75 feet long lying north to south with a large copper beech at the south end. There was, when I started, a large walnut tree on the west side about half-way along. Beneath the beech there was an L-shaped yew hedge 12 feet high, and underneath the walnut a great pile of rotten Cotswold slates thrown down by the builders who had re-tiled the roof. Along the west side of the barn were three large dung pits which probably contained about 15 tons of old compost. Underneath the walnut tree my predecessor, and we ourselves at the beginning, kept poultry; there was also a great pile of weathered boiler ash. This was flung over the slates without any attempt at levelling and on top was thrown the old compost. The soil is alluvial with a ph value varying from 7.0 to 7.4, and there was a supply of water from a spring giving 120 to 150 gallons an hour, so I installed a secondhand Stewart Turner pump and a 250-gallon tank but I was endlessly moving sprinklers and hosepipes whereas the water was always available. Eventually I put in a 500-gallon tank to add to the reserve supply and a polythene 2 inch pipe was taken round the perimeter of the garden with nine standpipes. It might be said that this watering system has cost a lot of money – in fact rather less than a double package trip to Majorca.

During this summer I have been pumping up to 1000 gallons a day but it has the disadvantage that the light soil is washed down, leaving the crowns 6 to 8 inches out of the ground after a few years. To get spring colour I planted primulas and small bulbs but I now think this is a mistake because I am unable to put on the compost dressing which should be applied annually, and am now faced with the task of digging the ferns up for the third time. The watering system made it possible to develop a long bed on the south side of the garden where the ferns grew well under the mist sprinklers but so did the convolvulus, the nettles and the buttercups and this is having to be replanted this year.

Amongst the ferns under the walnut tree I introduced *Adiantum venustum* and this has grown like a weed, even smothering small polystichums by ruining their crowns. In another part of the garden a single plant of this fern in 15 years has covered 16 square feet. Behind the yew hedge I planted a narrow border of scolopendriums which had formerly been with the other ferns and fragments of the venustum transplanted with them have again grown rampantly. I now think it is advisable to keep the varieties of a species together and not to mix them with other species. I had intended to make a collection of all the British species, not the varieties, as I know of no such collection where they can be seen together in a small area, so I brought in some tons of loam, but the need to save the polystichums from the strangler fern pre-empted the old dung pits into which the loam was put. Now, three years later, I have had to dig them out as they were smothering one another and many of them were degenerating into a mass of small crowns, so they have been divided and planted on the alluvium of the river meadow where the water-table is about 2 feet below the surface, and it is my hope that one day I will be able to put a fern girdle round our fine Norman church.

At the other end of the garden at right-angles to the holly hedge border I built a low wall for polypodies. These came mainly from Reg Kaye, Noel Brookfield and Bernard Hayhurst and at one time I had about 20 varieties but many are now lost. This past summer looked particularly disastrous but with the onset of damp autumn days they have come away and the fronds have never been bigger or greener.

I have tried propagation by all methods except apospory, but I am not methodical enough to go about it in the manner of the nineteenth century enthusiasts and not ruthless enough to destroy unwanted plants at an early stage: on the other hand, neglect sometimes does the butcher's work for me.

There is much more I could say but I will end with my thanks to the nurserymen (so appropriately named) who introduced me to the hobby, to the botanists among you who have tolerated my ignorance and instructed me and trusted me to see rarities I would never have seen otherwise, and to this Society whose traditions of friendship and generosity have given a new interest these past 20 years.

I think you will now have some idea why Lloyd Praeger has such an appeal for me and I quote the verse from which he borrowed his title —

I have lain in the sun
I have toiled as I might
I have thought as I would
And now it is night.

My bed full of sleep
My heart of content
For friends that I met
The Way that I went.

SPORE AND PLANT EXCHANGE

ORGANISER – R F Cartwright, 13 Perry Mill Road, Peopleton, near Pershore, Worcs.

Dick Cartwright has got the Spore Exchange working again and we enclose with this Bulletin a list of the spores held by him. We thank the members who have contributed to the collection and hope that others will help, not only abroad but in this country. Growers in Britain welcome spores from other countries but are apt to overlook that overseas growers are just as keen to get British fern spores as we are to get theirs.

In the last two issues we listed bodies and individuals interested in the exchange of spores and plants. Space forbids the repetition of the list in this issue although we hope to publish it at intervals. Additions to the list are –

David Wagner, Dept of Botany, Washington State University, Pullman, Washington 99163, USA, would like to receive pressed specimens of polystichums from anywhere in the world in exchange for plants of the Pacific North-west. He also has limited material from the Himalayas to offer in exchange.

Stuart L Williams, 226 Upton Road South, Bexley, Kent DA5 1QT would like a division of the sterile cultivar *Adiantum raddianum* 'Goldelse' (NOT 'Brilliant Else').

Members with plants to dispose of can send lists to the Secretary for circulation with the next publication being sent out – similarly, "Wants" can also be circulated.

THE SOCIETY IN AUSTRALIA

We are pleased to record that our membership in Australia is growing and there seems to be an upsurge of fern interest "down under". Some members correspond with me and I have made a point of putting them all in touch and have mooted the suggestion that they form an Australian branch or chapter of the Society. I have gone so far as to say that if the interest continues to increase at the present rate our friends could even consider forming an Australian Fern Society. Indeed, things seem to be already going that way for in his latest letter Chris Goudey of Werribee in Victoria tells me that a Fern Study Group has been started in New South Wales with a membership of 59 scattered throughout Australia – too scattered to hold meetings but they will have newsletters, a spore exchange and specimen identification to help beginners. We wish every success to the new venture and gladly offer any help we can give them.

While Ray Best, another Australian member, thinks the idea of an Australian Fern Society a good one, he is more in favour of forming a branch of our Society and thinks their approach should be what can they do for us rather than how they can benefit from us. While I appreciate his sentiments I do not agree that the giving should be all one way – we must also give as well as receive. He congratulates us on the way the Society is run and finds the Bulletin very interesting, particularly our meetings reports. He is in active correspondence with several other Australian and New Zealand members with whom he exchanges spores and fern information – he has also sent spores for our Exchange.

An article from Ray follows giving his methods of growing from spores in Australia.

GROWING FERNS FROM SPORES

R Best, Australia

Growing ferns from spores is not a difficult procedure but requires a little care, patience and close observance. Materials are not expensive and space requirements are small. To start with you will need two plastic 6 inch diameter squat pots (ordinary plant pots), but two plastic ice-cream cartons with drilled drainage holes are quite satisfactory, one shallow 1½ to 2 inch deep plastic tray large enough to take two or three 6 inch pots, two sheets of clear durable plastic, a few solid rubber bands (old car inner tube cut in slices is ideal for a 6 inch pot), one grease pencil (royal sovereign chinagraph) to mark pots with date and variety, a quantity of sieved crushed sandstone which I find superior to well-washed coarse sand, and a small amount of German peat moss (Detorf) which has proved superior to all other kinds and is imported into Australia and used by all our nurserymen.

Prepare a mixture of two parts crushed and sieved sandstone to one part sieved peat moss and mix well. Heat it in an oven to 200 degrees Fahrenheit for 30 minutes (an old metal baking dish in the oven will do) and allow to cool thoroughly. Place small pieces of sandstone left over from sieving in the base of the pots and fill with the mixture to within 1 to 1½ inches of their tops and soak the filled pots by placing them in a plastic dish with water up to the level of the mixture. Spores can be grown often with ordinary tap water but this depends of course on the purity of the water. Tap water in Australia gives rise to algae growth which in turn assists fungus growth and this blocks the prothallus development. Water can be boiled but I use rain-water from a tank for best results. While soaking the mixture in the water stir if necessary to make sure the whole is saturated. Remove from the water, allow to drain and level the surface of the soil carefully.

Now we select the spores we intend to grow, making sure that we have either neat spores or a reasonable percentage of spores against sporangium casing and annulus cell remains. Each sporangium or spore holder has an annulus which contracts like a spring when the sporangium is ripe, tears it and throws the spores out. Often, the amateur collects only the rubbish from which nothing can be grown. Some if not most botany books tell us to collect the spores when the sori are brown; this is generally incorrect and they should be collected when the sporangia are about to open or are opening. The careful spore collector checks before removing the frond that the sporangia are full or releasing spores. Each spore is about one fivehundredth of an inch across which makes them rather difficult to see without a good hand-glass or a microscope. However, many spores are attractively coloured which makes them easily discernable when massed. Those of the tree ferns *Cyathea australis, C. cooperii* and *Dicksonia antarctica* are like gold dust while *Todea barbara* has deep green and *Cyclosorus truncata* black ones.

Having obtained our spores we now shake them as evenly as possible over the surface of our damp mixture, place the sheet of plastic over the pot and fix it with the rubber band, then stand the pot in the shallow tray with the water level about 1 inch below the top of the mix. The tray and pots must be placed away from direct sunlight on a glassed verandah, glasshouse or fern house, protected from wind and rain, but not in a completely darkened place – some filtered sunlight is necessary. Watch the water level and top up after evaporation.

In approximately four months, according to the variety, prothalli should develop. Here fertilization takes place and the first fronds appear. When these have developed a little the young plants can be removed carefully. I wear my reading glasses and use tweezers, for up to 200 ferns in a 6 inch pot makes this a dainty procedure. The sporelings are spaced out in trays which are watered by immersion, in a similar mixture of sand and peat only, and covered with a sheet of plate glass leaving an air gap. When a number of fronds have developed the ferns will be much stronger and can be potted on. One cannot hurry the growth of ferns and often with tree fern varieties twelve months pass before we can remove them from the original pot. The use of fertilizers in these early stages is fatal to development and the food available in the soil mixtures is quite sufficient.

FERN EXHIBIT AT THE SOLIHULL HORTICULTURAL SOCIETY SHOW — 19/20 April 1975

Our very active Committee member, A R (Matt) Busby put up an excellent exhibit of ferns at the above Show, held at the Sydenham Notcutt Garden Centre, Stratford Road, Monkspath, Solihull, Warwickshire. All the ferns, hardy ones, were shown in pots, and he also included a spore germination display which aroused much interest. Packets of spores were given away with a typewritten sheet briefly outlining the fern life-cycle and containing instructions on how to grow ferns from spores. On display he had recently published fern books and the Society's publications. Many people were attracted to the exhibit and several new members have resulted. Congratulations, Matt, on a very good job well done. He is putting on a similar display next year — see our Meetings Programme — and we hope that members in the area will make a point of paying a visit to his stand and encourage Matt on his good work for the Society.

SOUTHPORT FLOWER SHOW 1975

J W Dyce

There was better support for the fern competitive classes at the Show this year and 9 different names appeared on the show cards, which is a big improvement on recent years. We hope this upsurge of interest will continue and that even more competitors will enter next year to make this Show, the only one in the country with a comprehensive schedule for ferns, more and more attractive not only for exhibitors but for visitors interested in ferns — this is the only place where they can get an opportunity to see what good fern varieties really look like.

As usual Noel Brookfield carried off our Society's Silver Trophy with his fern display in Class 6 which is for a group of hardy British ferns arranged in a natural manner in an area not exceeding 100 square feet. Two other competitors in the class, Rodney Brookfield and W H Howarth won second and third prizes respectively. Unfortunately, the very hot weather this summer has not been kind to ferns, particularly lady ferns, and sun scorch was evident in all the groups which otherwise were very good. The first prizewinner's *Polypodium vulgare* 'Cambricum' and its other varieties were particularly fine. Both the Brookfields used many fine lady ferns in their groups, all of them excellent apart from the unfortunate scorching. Mr Howarth showed smaller plants with again many lady ferns and a very mixed collection of other species.

The other prizewinners are listed below in order of winning –

Class 7	Six hardy British ferns (dissimilar) R Trippitt, N Brookfield, R Frost.
Class 8	Six greenhouse ferns (dissimilar) N Brookfield, W H Howarth.
Class 9	Three foreign ferns, hardy in Great Britain N Brookfield, R Coughlin, J W Dyce.
Class 10	Three scolopendriums J W Dyce, R Trippitt, R Coughlin.
Class 11	Three polypodiums N Brookfield, R F Brookfield, R Trippitt.
Class 12	Three polystichums R Coughlin, R Trippitt.
Class 13	Three athyriums N Brookfield, R Coughlin, R Trippitt.
Class 14	Three dryopteris R Trippitt, R Coughlin, N Brookfield.
Class 15	Three plants gymnocarpium, phegopteris and/or thelypteris R Trippitt, N Brookfield, R Coughlin.
Class 16	Three aspleniums, excluding Asplenium scolopendrium J W Dyce, R Coughlin, R Trippitt.
Class 17	One British fern N Brookfield, R Coughlin, J W Dyce.
Class 18	One greenhouse fern N Brookfield, L Bayley, R Coughlin.

The Brookfields had some excellent large pans of *Adiantum venustum, Davallia canariensis* and polypodies, some good scolopendriums and a fine stagshorn fern; they also had some very good plants of *Athyrium filix-femina* 'Clarissima'. Ray Coughlin had some well-grown exhibits, including *Blechnum tabulare, Scolopendrium* 'Crispum', *Polystichum aculeatum* 'Pulcherrimum Bevis' and *P.a.* 'Pulcherrimum Gracillimum'. Bob Trippitt did not have so many outstanding plants this year but his *P.a.* 'Pulcherrimum Drueryii' was very good as was *Scolopendrium* 'Crispum Nobile Bolton' and 'Laceratum Kaye'. This year I ventured to join the ranks of the exhibitors and was very successful with my aspleniums, *A. fontanum, A. ruta-muraria* and *A. septentrionale.* Reginald Kaye was the judge for the fern classes.

The Society's Stand was well organised by Matt Busby who had a fine exhibit showing the growth of ferns from the spore onwards. It proved a great attraction and brought many otherwise uninterested spectators to the Stand. Ferns in pots and a large collection of varied fronds decorated our tables and it was noticeable how two large 'Crispum' varieties of *Scolopendrium* brought passers-by to admire and ask questions. We had several willing part-time helpers to assist Matt and myself – Henry Schollick, Norman Robinson, Dick Cartwright, Bob Trippitt and others. Many members called on us and we were particularly pleased to welcome our new President, Dr Stanley Walker, who made the journey from

Liverpool for the express purpose of visiting us. We gathered in 3 new members and hope to have more in due course from among our many callers.

REVIEWS

DR WARD'S CASE by D E Allen in the British Medical Journal, 10 May 1975, pp 324-326.

For those who would like to know more about Nathaniel Bagshaw Ward (1791-1868) and his Wardian Case, here is the biggest and best statement, together with portrait, that I know. It amplifies David Allen's equally erudite but brief information in his book *The Victorian fern craze* (London: Hutchinson, 1969).

J A Crabbe

FERNS by Roger Grounds, Pelham Books, London. 1974 (March 1975), 264 pages, with 22 plates in colour, 61 black-and-white line-drawings and nature-prints. £5.50.

The author, an enthusiastic gardener, plantsman and author, tells us of ferns, their life-cycle, geographical distribution, identification, cultivation, with descriptions of particular habitats and kinds – maritime, mountain, succulent, wet places, water, filmy, woodland, tree-ferns, epiphytes, climbing and hybrids. There is a glossary, a bibliography, a list of fern societies, and an index of common and Latin names. In spite of its dust-jacket wild claim to be "the first definite book to appear on this subject since the height of the Victorian fern craze", it is an excellent complement to our English-language fern books of recent years (eg: Foster, Kaye, Macself, Swindells) which form a nucleus of guidance.

Owing to unfortunate printer's errors, the following corrections are necessary to the coloured plates – facing p. 49 (top) = *Asplenium trichomanes*; p. 144 = *Dryopteris filix-mas* 'Linearis Furcata'; p. 169 = *Athyrium filix-femina* 'Plumosum'; p. 216 (lower) = *Polypodium interjectum*, looks more like *P. australe*; p. 240 = *Polystichum setiferum* 'Divisilobum'; p. 241 = *Polystichum aculeatum* 'Pulcherrimum Bevis' or 'Pulcherrimum Drueryii'.

J A Crabbe

THE WILD FLOWERS OF GUERNSEY by David McClintock, 150 x 230 mm, 288 pages. 1975. Collins, London. Price £4.75.

David McClintock has been associated with Guernsey for some 30 years. This book is the result of 185 days on the Island plus a lot of hard work in corresponding and compiling back in England. His aim is to interest and stimulate a wide variety of people and this he should achieve. This book is not a conventional County Flora, in my opinion it's much more interesting. Almost every one of the 1340 specific entries contains an anecdote of the folklore, history or biology of the plant in question. There are 44 entries for ferns covering 10 pages and many species eg: *Asplenium X sarniense, A. X microdon, Anogramma leptophylla, Isoetes histrix* and *Ophioglossum lusitanicum* get a full write-up. A brief history of botany and collecting on the Island is given, and the meeting in 1971 of our own Society is recorded and acknowledgement is made of several members' observations.

You do not have to go to Guernsey (although the reviewer recommends it strongly) as a stimulus to buy this book: all you need is an interest in plants and a desire to learn more about them.

A C Jermy

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	Amend –	Mrs Kaye in Members List to – KAYE Mrs Marion

Delete from Membership List

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Mrs B E G Allen
Miss S Aspinall
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A J P Butters
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D A J Farthing
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Wilfred Scott
Sir Sacheverell Sitwell
D A Stuart
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Miss V L Wood

MARRIAGES AND BIRTHS

We are happy to make the following announcements –

Marriages: Graham Fairweather – Janet Beardsell on 27 September 1975
Alison F Kirkland – now Mrs Alison F Marchant

Births: Dr Christopher and Dr Pauline Page – a son, Angus Edwin, on 3 December 1974
Christopher and Mary Potts – a daughter, Kathrine Joyce, on 4 September 1975
Kenneth and Katie Trewren – a daughter, Jennifer Claire, in the spring 1974

OBITUARIES

It is with great regret that we have to announce the followind deaths –

Dr Albert Schumacher of Waldbrol in West Germany whose death has just been advised to us, joined the Society in 1962 and has always taken an active interest in our affairs. Reprints from his fern papers appearing in various journals have always been sent to the Secretary. We extend our sympathy to his family.

Geoffrey Gilbert died in September 1974 but we were able to give only a brief announcement of his death in the 1974 Bulletin.

In the latter part of his life Geoffrey was a journalist and commercial photographer renowned for his portraits of politicians, including the one for the Winston Churchill Campaign. He was a keen traveller in his earlier years and visited China and Tibet where he took a great many photographs, and worked in the USA. He invented a flash gun and a camera and wrote a book on the subject, *Photo Flash.* A keen botanist and gardener and a Fellow of the Royal Horticultural Society, he joined our Society in 1964 and built up a collection of ferns in his garden which contained over 2000 kinds of plants, including orchids for which he had a great love. Bottle gardening was another interest and also experimental Wardian Case structures on which he wrote in the Gazette Vol 9 part 7 in 1966.

His garden was an ecological one where the plants were carefully chosen to balance and complement each other, and this aspect of gardening he developed further in 1970 when with the support of Sir Julian Huxley, he led a campaign to have Hampstead Heath restocked with wild flowers. He was emphatic that the plants should not be planted at random but that first the reasons for the decline in the wild flower population should be examined, and then only plants ecologically suitable should be re-introduced. He wrote a delightful book, *The Lazy Gardener's Guide*, which explains his ideas on ecological gardening and exudes his endearing dry drawlish humour and philosophy. At the time of his death he had just finished another book on indoor gardening.

Geoffrey was a keen and active member of the Society, not a regular attender at field meetings but frequently appearing out of the blue in his old motor caravan. With his lazy bearded smile, twinkling eyes and constant good humour, he was a very popular and highly regarded member whom we all miss very much. He is survived by his son who is endeavouring to carry on his good work.

J A Crabbe and J W Dyce

John Ramsbottom, 1885-1974, the eminent mycologist who died on the 14 December last year was made an honorary member of our Society in 1948, at the time when A H G Alston was Head of the Fern Section at the British Museum (Natural History) and also Editor of our Gazette. Ramsbottom was Keeper of Botany at the Museum and thus Alston's head of department, so it was natural that, when Alston was ill, he stepped in and edited Gazette Vol 7 No 8. In his Editorial on page 189 he expressed the wish to see our Society develop along scientific lines while retaining the characters which endeared it to its members, and he went on to say that collectors and cultivators have much to offer the trained botanist and much to gain from his co-operation.

Obituaries and tributes have appeared in *The Times* 17 December 1974 (by R Ross, Keeper of Botany at the British Museum) and 28 December by E F Allen; *B.S.E. News* (The Newsletter of the Botanical Society of Edinburgh) No 15:11-13, February 1975 by J R Matthews; *Bulletin of the British Mycological Society* 9:58, Spring 1975 (by Mary Noble); and *Transactions of the British Mycological Society* 65:1-6, with portrait and specimen of handwriting, July 1975 by P H G(regory).

J A Crabbe

MEETINGS PROGRAMME 1976

Meetings Secretary	A J Worland, 102 Queens Close, Harston, Cambs CB2 5QN
Meetings Committee	R F Cartwright, J A Crabbe, J W Dyce, J W Merryweather, M H Rickard, J R Woodhams
Saturday 7 February	Indoor Meeting at the British Museum (Natural History), Cromwell Road, London SW7 5BD at 2.00 pm.
Saturday 7 February	Annual General Meeting to be held at the British Museum (Natural History), Cromwell Road, London SW7 5BD at 2.30 pm.
Saturday/Monday 17/19 April (Easter)	Fern Exhibit by A R Busby at "Welcome to Spring" Flower Show at Sydenham Notcutts Nurseries, Monkspath, Solihull, West Midlands.
Saturday 22 May	Visit to the Fern Houses and outside fern borders at Kew Botanic Gardens at 2.30 pm.
Friday/Sunday 4/6 June	Weekend Meeting in the Lake District. **Leaders:** Michael and Mary Gibby. **Centre:** The Mortal Man Hotel, Troutbeck, Windermere, Cumbria.
Saturday 12 June	Visit to Cambridge Botanic Gardens at 2.30 pm. **Leaders:** Roger and Tony Worland.
Friday/Sunday 18/20 June	Weekend Meeting in West Yorkshire. **Leaders:** James and Margaret Merryweather. **Centre:** Bankfield Hotel, Shipley, West Yorks.
Sunday 25 July	Day Meeting in Wyre Forest, Bewdley, Worcestershire. **Leader:** Matt Busby. Meet at 11.30 am in forest car park on A456.
Saturday/Saturday 31 July/7 August	Week Meeting on Isle of Arran. **Leaders:** James and Margaret Merryweather. **Centre:** Corrie Hotel, Corrie, Arran.
Thursday/Saturday 19/21 August	Southport Flower Show. Many fern classes showing selection of best varieties. Visit the Society's Stand in the Societies' Tent.
Saturday/Saturday 4/11 September	Week Meeting at Ilfracombe, North Devon. **Leader:** Jimmy Dyce **Centre:** Langleigh Park House, Langleigh Lane, Ilfracombe.
Sunday 19 September	Day Photographic Meeting in Sussex **Leaders:** Photography – Tom Buckeridge Ferns – Jimmy Dyce Meet at 11.30 am at Tyes Cross, 1½ miles east of West Hoathly.
Saturday 9 October	Garden and Indoor Meeting at Chelsea Physic Gardens, Royal Hospital Road, London SW3 at 2.00 pm.

REGIONAL DAY MEETINGS

Suitable dates to be arranged by direct personal contact with organisers –

South-west England: Chris and Mary Potts, 4 Montpelier, Weston-super-Mare, Avon.
Yorkshire: James and Margaret Merryweather, Ferniehurst, Station Road, Bubwith, Selby, Yorks.
Midlands: A R Busby, Department of Biological Sciences, University of Aston in Birmingham, Gosta Green, Birmingham B4 7ET.

British Pteridological Society
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THE
BRITISH PTERIDOLOGICAL
SOCIETY

BULLETIN

edited by
J W DYCE

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VOLUME ONE · NUMBER FOUR

1976

BRITISH PTERIDOLOGICAL SOCIETY
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The Society is open to all interested in any way in FERNS and FERN ALLIES upon payment of an annual subscription of £5.00 (subscribers), £4.00 (full members), £3.00 (students under 25 years old), £3.00 (members not receiving Gazette). Full details will be sent upon application to the Secretary.

Back numbers of the GAZETTE and the BULLETIN are available for purchase either as complete sets or single issues. Full details can be obtained from the Secretary.

THE
BULLETIN

Vol 1 1976 No 4

SECRETARIAL NOTES

These notes are begun while sitting on a high promontory near Ilfracombe overlooking the Bristol Channel with the Welsh coast dimly visible through the haze. A recent leg injury has prevented me from taking an active part in the hunt for ferns during the meeting held here this autumn, but my frustration is somewhat allayed by being able to write about them. Consequently my time is not being wasted and progress in the preparation for this issue of the Bulletin is benefitting accordingly!

CORRECTION — In the report on the Argyll Meeting published last year in the Bulletin Vol 1 No 3, the name Kilfinan erroneously appears as Kilfillan on pages 92, 96, 97 and 98. Please make the necessary corrections in your copies.

FERN COLLECTION AT WISLEY — Members will be interested to know that there is again a collection of hardy ferns in the Royal Horticultural Society's Gardens at Wisley in Surrey, smaller than the ill-fated Cranfield collection certainly, but containing many fine varieties. It has been gifted by our member Graham Thomas and those of us who visited his garden at West End, Woking some years ago will remember the many good ferns he had there. They can now be seen at Wisley and we sincerely hope this collection fares better than the previous one. At least, while Mr Thomas is on hand to watch over it, it will flourish and, it is hoped, increase by the addition of other ferns from various sources.

MEETINGS — Meetings Cards for 1977 are enclosed with this Bulletin to all inland members. Overseas members, visiting Britain, can obtain them on application to the Meetings Secretary.

It has come to my notice that some members may be labouring under the wrong impression that unless they inform the Meetings Secretary of their interest in or intention to attend meetings by completing and sending to him the Form attached to the Meetings Programme, they cannot come to the meetings. This, of course, is entirely wrong — ALL members (and their friends) are welcomed at ALL meetings, whether or not we are informed in advance. We warn, however, that should a meeting be cancelled or changed in any way, *you will not be advised unless we know you are interested* — this is one of the chief reasons for having this form. Another reason is that it gives some guidance to the leaders when planning the details of meetings if they know what the attendance — if any! — is likely to be. With the small numbers we often get at some meetings the unexpected appearance of another member is hailed as a welcome bonus!

PUBLICATIONS BY AIRMAIL – Many overseas members find that the time required for our journals to reach them by seamail, particularly when they live halfway round the world in Australia, New Zealand, Japan, etc, is far too long. Unfortunately, the vicious increase in postal rates precludes us from sending all publications by airmail, but we shall be happy to accommodate members wishing for this speedier delivery, for an airmail fee of £1 annually. Please advise *the Secretary* if you want this facility, and the £1 fee should be added to your annual subscription when remitting the amount due to the Treasurer. This fee of course will be subject to increase if the upward trend in rates continues.

FERN NAME CHANGES – There have been more changes in the names of ferns and fern allies and the following are coming into use – *Dryopteris abbreviata* is now changed to *D. oreades, Lycopodium selago* to *Huperzia selago, Lycopodium inundatum* to *Lycopodiella inundata* and *Lycopodium alpinum* to *Diphasiastrum alpinum.*

AUSTRALIAN MEMBERS – Interest in ferns continues to increase in Australia and our membership there is growing fast – we have now got 19 members and subscribers. There is also a Fern Study Group in the Society for Growing Australian Plants and I am informed that the Group has now over 80 members and is making rapid progress. I understand they circulate a newsletter, give help to members in the identification of ferns and have a spore bank. The Secretary is Mr Steve Clemesha, 18 Wesson Road, West Pennant Hills, New South Wales 2120. We send greetings and our good wishes to the Group.

READING CIRCLE – The American Fern Journal, a quarterly containing much information for those seriously interested in ferns, is circulated to Reading Circle members. I will gladly add new names to the list.

TALKS ON FERNS – After my appeal last year I now have a list of a few members who are prepared to talk on ferns to horticultural and other societies in their areas. More are needed from different parts of the country to enable us to provide this useful service to the cult. Please advise me if you are willing to help. All arrangements, financial and otherwise, will of course be between speakers and the bodies concerned.

MEMBERS VISITING MADEIRA. Major C H C Pickering of Casa Velha da Casa Branca, Funchal, Madeira advises that he will be happy to act as our local correspondent and give help to any members who are interested in visiting Madeira. He can help in many ways, *provided he gets plenty of warning* –

1. Inexpensive accommodation.
2. Car Hire. He will act as chauffeur if necessary; after 26 years residence he knows the best places, many of which are difficult to find and inaccessible.
3. If on B. and B. basis, where to buy food etc; prices vary enormously.
4. Taxis.

He adds that if members want to stay at expensive hotels, such as Reids, Savoy or Sheraton, there is no problem except the price, £20 a day plus or minus. Major Pickering writes in September 1976, and no doubt in 1977 this price will be very much £20 PLUS !

GARDENS TO VISIT — This annual booklet published by the Gardeners' Sunday Organisation, lists gardens opened to the public. Obtainable from bookshops or from the Organiser, Mrs K Collett, White Witches, Claygate Road, Dorking, Surrey. The cost of the 1977 issue has not yet been fixed but will be around 25p.

ACKNOWLEDGEMENTS — I thank our contributors who continue to ensure that I have a plentiful supply of material in a wide variety of subjects, and those members who have given me guidance and help, especially Jim Crabbe whose valuable assistance does much to ensure the success of this journal. I thank, too, the many members whose letters of appreciation give me encouragement and a pleasing realisation that my labours are not wholly in vain. It is time, too, that I acknowledged the great debt I owe to our printers, Metloc, who have always given us an excellent production at a most reasonable price. We have "grown up together" — Valerie Metcalfe started the business in 1967 and one of her first jobs was the first issue of our Newsletter. Her interested help and co-operation are greatly appreciated and do much to ensure that the publication date I always strive for, mid-November, is never much over-stepped.

TREASURER'S REPORT

This report covers the financial period from July 1975 to December 1975. It can still be treated as a full statement because this was the extent of the membership subscription and during this period two publications were issued as normal. Nevertheless the relatively short period of time has produced a few anomalies in the accounts. The income from subscriptions is apparently lower but this is because so many members take longer than six months to pay. The deposit account interest is less as are certain of the sales, but this is simply a result of the shorter 'year' which has also slightly reduced our administration expenses.

The account shows nearly £350 as special donations to the Holttum Gazette and I should like once again to thank those members who so kindly gave money for that purpose. The financial year ended with the Society showing a slight excess of income over expenditure but this would certainly have not been the case without the donations.

I am reasonably optimistic about the 1976 accounts, for the new subscription rates have caused very few people to resign and our total membership appears to be still increasing. I hope that the society may be able to 'make money' for a couple of years so that we can subsidise following years before being forced into another round of subscription increases.

THE GREENFIELD FUND — It will be noted in the Financial Statement that there is a balance of £824.20 in the above Fund. Accrued interest on the sum amounts to £46. No action has yet been taken on the use of this interest in the manner laid down when the Fund was established, that is, to give help to projects by members, such as approved research work, Society publicity projects, or awards for meritorious achievements; workers eligible for university grants or similar support are, generally speaking, precluded from participation.

Members who consider they may be suitable candidates for help from the Fund when it is decided that the accumulated interest is sufficient for disbursements to be made, are invited to write to the Secretary. All claims will be submitted to the Administrators of the Fund for their consideration.

FINANCIAL STATEMENT AS AT 31 DECEMBER 1975

ORDINARY ACCOUNT

Income 1974/75		£	£
£911.27	Subscriptions		807.35
9.25	Donations		7.60
	Special donations to the Holttum Gazette		349.47
	Sales –		
196.25	Gazettes, Newsletters, Bulletins	82.72	
4.70	Victorian Fern Craze	6.00	
3.85	Beginners Guide	1.75	
15.50	International Directory of Pteridologists	4.00	
21.60	Reprints	18.84	
15.11	Sundries	10.61	123.92
143.13	Profits from the sales of Guernsey stamps		23.90
103.78	Interest on Deposit Account		38.01
			£1350.25
Expenditure			
£184.00	Metloc a/c Bulletin Vol 1 No 3		251.00
460.00	Econoprint – Gazette Vol II part 3		790.00
52.61	Printing and Stationery		73.01
191.10	Administration Expenses		155.18
14.00	Meetings expenses		7.28
5.00	Bank charges on current account		2.35
			£1278.82
	Excess of income over expenditure		71.43
	Balance carried forward from June 1974		78.34
	Balance in hand		£149.77

PUBLICATIONS ACCOUNT

Income	Balance carried forward	1050.00
Expenditure	Metloc – reprinting Gazettes	108.86
	Balance in hand	£941.14

GREENFIELD FUND

Balance carried forward	£824.20

THE ANNUAL GENERAL MEETING – 7 FEBRUARY 1976

Owing to the change in our year from July/June to January/December it has been necessary to change the date of the AGM from the autumn to the spring. In consequence the 73rd Annual General Meeting of the Society was held only 4 months after the previous one and the "year" under review was a period of 6 months only. A good attendance of 41 members attended the Meeting and the Indoor Spring Meeting which followed, held in the Conversazione Room at the British Museum (Natural History) on the afternoon of Saturday 7 February 1976.

We were very sorry not to have our President, Dr Stanley Walker, with us. He was a victim of the flu which was raging at the time and his place was taken by Henry Schollick. The short "year" helped to speed up the proceedings and the Secretary's report was a brief one. The recent rise in the subscription rates made any definite statement on membership figures impossible as we still did not know how many members would be resigning. A figure of 500 was stated from which has to be deducted the number of those dropping out, but the intake of new members continues unabated and is likely to more than offset the wastage, so at the end of 1976 we shall probably have a good increase which will continue the upward growth of the Society.

Our new Editor, Dr Chris Page, was unable to be present but submitted a report in which he outlined his future plans for the Gazette which will closely follow those of his predecessor, Clive Jermy. He has decided to work to a spring publication date annually so that the Gazette and the Bulletin will be spaced at roughly 6 month intervals. He was able to assure the Meeting that preparations for the coming 1976 issue are well advanced.

One important matter of interest was discussed – the future of Reginald Kaye's book *Hardy Ferns*. The publishers ceased publication of the book in 1975 and with the author's approval the unbound material left in their possession, sufficient for about 900 copies of the book, was gifted to the Society. It was planned to have them bound by the publishers' binders in the same format and to offer them for sale to members at a figure well below the publishers' price. Henry Schollick is undertaking the organisation of this venture which should bring in some welcome funds for our coffers.

In view of the short period which had passed since the last election of Officers and Committee in October 1975 it was agreed not to have another election and the present governing body is to continue unchanged until the 1977 AGM.

The Meeting closed with the presentation to the Secretary of the Stansfield Memorial Medal which had been awarded to him at the last AGM. We were sorry that Reginald Kaye could not be present to receive his Medal and it was sent on to him with a suitable letter.

MEETINGS 1976

In conjunction with the AGM at the British Museum (Natural History) on 7 February we held the **Spring Indoor Meeting**. This was attended by about 40 members and friends. We had a full programme commencing before the AGM at 2 pm with exhibits and informal chatting, and followed afterwards with a talk on plant photography by Tom Buckeridge who was able to impart much useful information on the subject to those of us who are interested in making pictorial records of our ferns and other plants. John Woodhams followed with an account, illustrated by slides, of his visit to California where he and his wife met many of the keen fern growers of the area and were well entertained by them. We have to thank Joan, his wife, for her work in the preparation of a very nice buffet meal which was enjoyed by all of us.

The **Autumn Garden and Indoor Meeting** on 9 October was held at the Chelsea Physic Garden and attended by 32 members who were welcomed by the Curator, Allen Paterson. The meeting commenced with a talk by Mary Gibby on "The Buckler Fern complex" in which she reviewed the problems involved and explained some of the many mysteries still remaining in the complex, accompanied by a large selection of herbarium specimens. After a look round the Garden a buffet meal, beautifully prepared by Joan Woodhams, was enjoyed and we finished with a showing of slides by John Woodhams, Bert Bruty and Connie Jensen.

We had the usual well-attended **Kew Meeting** on Saturday 22 May when 34 members and friends gathered at the Fern Houses. First we had an interesting and informative talk by Professor Holttum on the Gleichenias, with a talk on their propagation by Barrie Castell. This was followed by a tour of the Fern Houses and a commentary on various ferns of interest by the Professor and John Woodhams to whom we are also indebted for the article which appears in this issue on the Gleichenias and their cultivation. In their usual hospitable way the Professor and Mrs Holttum invited the party to visit their nearby home for tea after the meeting. Many accepted and we thank our hosts for this most refreshing and enjoyable finish to our day.

DAY MEETINGS

Cambridge Botanic Garden — 12 June. We had 21 members and friends at this meeting and we were welcomed by the Director of the Garden, Dr Walters, who led us on a sight-seeing tour, pointing out things of interest and telling us about recent developments and planned future development. Afterwards we continued to explore on our own and spent some time among the ferns in the fern borders and in the rock garden where many of the smaller ferns can be seen. Our leader, Tony Worland, and his wife Barbara provided a welcome cup of tea and cakes which was much enjoyed and appreciated.

Wyre Forest, Bewdley — 25 July. Led by Matt Busby, this meeting provided a leisurely walk through the picturesque Wyre Forest with 7 members present. Along the path from the car park to the Dowles Brook Nature Reserve situated in the centre of the Forest, several fern species were noted; *Athyrium filix-femina* and *Blechnum spicant* were in abundance and the three usual dryopteris species, *D. austriaca, D. filix-mas* and *D. pseudomas* were seen, also a small plant of *Oreopteris limbosperma* in the rather dry ditches alongside the footpath. As the forest is managed by the Forestry Commission on commercial lines it is inevitable that the old deciduous trees are slowly giving way to the regimented lines of conifers, but the Dowles Brook area is kept as a nature reserve and much of the old oak, beech and birch is retained. A short search along the brook found all the afore-mentioned species together with both *Polystichum aculeatum* and *P. setiferum.* A small colony of *Polypodium vulgare* was seen on the bole of an oak tree. Of the allies, 2 species of horsetail were noted, the rather dainty *Equisetum sylvaticum* forming long colonies in the shade along the fire rides, and at Dowles Brook one which the consensus of opinion thought to be *E. palustre.* Matt considers that Dowles Brook provides an excellent opportunity for fern-hunting and it is his intention to survey its whole length sometime in the near future.

Photographic Meeting in Sussex — 10 September. We were pleased to have nine members at this meeting which made it a worth-while exercise for Tom Buckeridge who led the meeting to give instruction in plant photography. The weather remained dry and bright, an essential for this kind of activity. In the morning a deep valley at Philpots Farm near West Hoathly was visited and good photographic experience was gained taking pictures of the fine colonies of *Hymenophyllum tunbrigense* growing on the sandstone rocks and the other ferns along the banks of the stream. We went on to Newbridge between Forest Row and Crowborough in the afternoon and explored along the stream and finished the day in Tom Buckeridge's garden and greenhouse in Isfield to see his many ferns and enjoy a welcome cup of tea from Joyce Buckeridge.

REGIONAL DAY MEETINGS

This year we had fewer weekend meetings and decided to give more emphasis to day meetings in the regions. In this way we have succeeded in coaxing more members "out of their shells", but only when regional organisers have gone to some trouble to contact them; speaking generally, it seems obvious that members left to themselves are not prepared to take the initiative, but when approached are quite pleased to attend small local gatherings if they can. We need more willing horses in various parts of the country, prepared to undertake what is probably regarded as a thankless task, but if they will read the notes below from Mary Potts reporting on her regional meetings in the West Country this year, they will realise that there are rich rewards — getting to know other fern enthusiasts, visits to their gardens and places of local plant interest, and in the exchange of plants and fern know-how. Those who would like to have a try and do not have complete membership lists (this list was published in the first issue of the Bulletin and additions and deletions have been advised annually in the following issues) can obtain from the Secretary area lists of members whom they can contact.

Yorkshire. Once again members in this region have shown a lack of interest in these meetings and no enquiries have been received by James and Margaret Merryweather who volunteered to organise these.

Midlands. Matt Busby has been even more active this year, working from his centre in Birmingham and in constant touch with many of the members in the area, welding them into what can be loosely called a branch of the Society with Matt available to answer questions and thus relieve the Secretary of some work.

On Saturday 27 March he held a meeting at the University of Aston in Birmingham which was attended by nine members and three visitors. Informal chat was accompanied by a brisk trade in fern plants and books and a visit was paid to the Fern House which is one of Matt's charges. He wishes to thank all those who came along to give support and special thanks are due to his wife, Margaret, who provided us with tea and cakes. The sale of plants realised £6.05 and a cheque for the amount was forwarded to the Treasurer.

On 10 March Matt gave a 2½ hour talk on ferns to the Solihull Horticultural Society, illustrated by colour slides and potted ferns. It was warmly received by a meeting of 47 people who were most attentive and asked numerous questions. He has also been invited to address the Midland Gardeners Association on 8 November.

Ray and Rita Coughlin kindly opened their garden to Midland members on 4 July and 10 members with their families took the opportunity to see this beautiful garden with its many fine ferns and other interesting plants. The extensive fern collection was at its very best and much fern discussion accompanied the stroll round the garden. Ray invited members to bring along fronds from their own plants and a small competition was held with some of Ray's own ferns as prizes for the best fronds. With help from Audrey Cartwright, Rita laid on a splendid cold lunch, helped down with some of the excellent Coughlin home-made wines. Thank you, Ray and Rita, for a most enjoyable day.

South-west England. Early in the year Mary and Christopher Potts of Weston-super-Mare sent out to all members in their area a programme of meetings which they were planning for the summer. Mary reports on the three which were held.

The Potts At Home — 26 June. Our fern day fell on the first day of intense heat with temperatures of over 90 degrees and though nine members were expected only five arrived. A great many different species of ferns were exchanged, including two water ferns, though by far the most ubiquitous was the Lady Fern, and many 'Victoriae' and 'Frizelliae' sports are lodging with us and still awaiting good homes. (I feel like charging for the water!). After lunch we travelled to Bristol Botanic Gardens where Mark Smith took us on a really excellent tour and was able to point out many interesting and rare plants. The fern collection is expanding fast and I was pleased to see a plant of *Dryopteris cristata* which I have not seen before in cultivation or the wild. Most members departed for home from Bristol and in spite of the heat spent a rewarding day. To anybody living in the vicinity of Bristol the Botanic Gardens are well worth visiting and whatever the time of year there is always something of interest.

Philip Coke's Fern Day — 17 July. Nine members met at Philip Coke's home at Stinchcombe — again in tropical heat and though some of us were certainly wilting the ferns were in splendid condition. Philip has maintained his entire collection on waste water and carried it up the steep gradient of the garden by hand; the flourishing state of the plants showed that this labour of love has been well rewarded. Some of the plantings looked particularly good with variegated ivy as ground cover. A lot of Philip's plants have been grown from spores and we were able to see some interesting forms of *Athyrium filix-femina* and some polystichum varieties. A number of plants were exchanged and most members benefitted from Philip's generosity and left with car-boots stocked with ferns.

Kenneth Adlam's Fern Day — 29 August. Only 4 other members (in addition to the Potts, I presume — *ED*) attended this meeting but again, despite extreme conditions, Kenneth's garden and fern collection were well-worth seeing. Some of the more moisture-loving species were showing brown fronds and the Lady Ferns were withered but the rest of the collection was growing well. Kenneth has been able to water some plants, but to maintain even a small portion of his garden would have been impossible using only water carried by hand. Even small newly-planted coniferous trees, completely unshaded, and growing in rough grass were still alive; Kenneth's policy of really good planting with adequate root space and constant maintenance has paid off and preserved those plants through rigorous conditions. Many ferns were growing in pots, the aspleniums and polypodies showing their usual luxuriance at this time of year. A visit to Knighthayes Court during the day was rather depressing as far as ferns were concerned, and many of the plants were dead or dying, particularly some fine stands of adiantum and *Blechnum penna-marina*, also Lady Ferns and some Male Ferns. Polystichums appeared to be faring better and in some areas of woodland all the undergrowth was in good condition, possibly due to underground culverts or greater soil depth. Despite the drought there were large numbers of unusual and interesting plants and shrubs to admire.

WEEKEND MEETINGS

The Lake District — 4/6 June. It was pleasing to have a good attendance of 15 members and friends at this meeting led by Michael and Mary Gibby, and centred at the Mortal Man Hotel in Troutbeck near Ambleside. In the party were two Americans, Victor and Ethelyn Williams, members of the American Fern Society, whom it gave us the greatest of pleasure to welcome — before they left they were (without any persuading from us!) also members of our Society, and we hope that we shall again in the not too distant future be able to enjoy their cheerful company in the field and (dare I say it?) in the hotel bar!

On the Saturday morning we visited Old Brathay and explored the neighbourhood which is very ferny but no unusual finds were made except for a fine colony of *Onoclea sensibilis* on some marshy ground. The afternoon was spent in the Duddon Valley, some distance away, where we hunted along the river. By the side of a waterfall there is a magnificent colony of *Osmunda regalis* which it would be hard to better anywhere. Other ferns here were *Cryptogramma crispa* which is one of the very common ferns of the Lake District, the common species of dryopteris and *Phegopteris connectilis*. It rained all day but fortunately, not heavily so it did not restrict our movements. Sunday remained dry and was spent on Whitbarrow Scar, a name well-known in the early days of the Society for the many fine fern varieties collected from its limestone scars. We recorded 20 species;

the spleenworts were in force, *A. ceterach, A. ruta-muraria, A. scolopendrium, A. trichomanes* and *A. viride*, along with other limestone ferns *Cystopteris fragilis, Dryopteris villarii, Gymnocarpium robertianum* and *Polystichum aculeatum.* In places on the top from which the lime had been leached there were colonies of *Blechnum spicant,* and other ferns seen in shady corners were *P. connectilis* and even *D. carthusiana,* while a colony of *Equisetum fluviatile* was seen in a small pool on top of the Scar.

West Yorkshire – 18/20 June. Only five members attended this meeting but among them was Dr Anne Sleep from Leeds University and it was really good to have her along with us and to see her becoming more active again after a long spell of illness. Although the meeting was centred at Shipley, our first day's hunting under the leadership of James and Margaret Merryweather was far removed, to the south of Huddersfield on Saddleworth Moor where a steep rocky valley below Raven Stones Brow was explored. It was an area of millstone grit which proved inhospitable where ferns were concerned and we found only 7 common species in very small numbers. Following this disappointing morning we moved north past the newly flooded Scammonden valley to Booth Wood stretching along the sides of a deep ravine where the main rock was also millstone grit, but made more acceptable to plant life due to the influence of base-rich water flowing over it. One basic flush was carpeted with beautiful acres of *Equisetum sylvaticum* which was also seen on the roadside verge above, with odd plants of *Dryopteris filix-mas* and *D. austriaca.* On the more open heath above *Athyrium filix-femina, Oreopteris limbosperma* and *Pteridium aquilinum* were found and in the shady valley bottom other species included *Blechnum spicant, D. pseudomas* and *E. arvense.* We saw only a fraction of this mile-long wood with its profusion of lime-loving plants in a region of dry, acid, barren habitats. Further visits could easily augment the species record and there is always the hope of finding a filmy fern here; not only have hymenophyllum species been frequently recorded locally but even the very rare *Trichomanes speciosum* was once known in the Scammonden valley!

Sunday morning was spent at Leeds University Botanic Garden to see Anne Sleep's experimental plants. She showed us many of her polystichum hybrids and other ferns of interest, and in the glasshouses were many more. It was most exciting to see so many unusual plants but one got overwhelmed trying to sort them all out in the mind. The afternoon was quiet after most of the members had set off for home but there was still plenty of time for the Secretary to be shown Spring Wood near Baildon by Margaret Merryweather who cut her pteridological teeth there. A small colony of *Ophioglossum vulgatum* was seen in the meadow near the wood which has a marshy margin with *Equisetum palustre* growing happily among the other marsh plants. The wood grows on the banks of a robust stream and contains a large number of ferns – *D. austriaca, D. filix-mas, D. pseudomas, A. filix-femina, B. spicant, Oreopteris limbosperma* and *P. aquilinum,* also *E. arvense* and a large colony of *E. sylvaticum.* One of the most abundant ferns was *D. austriaca,* very large growing, but in one part of the wood it appeared to be very different from the expected. Description is difficult but the frond colour was a delicate yellowish green, not that of starved plants but fresh and vivacious. The venation was prominent and the pinna/pinnule surface almost planar and the normal downward crimping was only hinted at. The rachides were clothed with a dense covering of ginger scales. In some ways they were rather suggestive of *D. assimilis* but were not this species and no explanation for their relationship to the type could be agreed upon.

The following are records for the weekend meetings not included in the *Atlas of the British Flora* or which appear as pre-1930 records –

Nat Grid Ref.	**The Lake District**
34/29. 2297	Duddon Valley, below High Tongue – *Dryopteris abbreviata.*
34/48. 4386, 4486	Whitbarrow Scar – *Cystopteris fragilis, D. carthusiana.*
4486/87	Whitbarrow Scar, top plateau – *Asplenium ceterach, C. fragilis, D. carthusiana, Equisetum fluviatile, Oreopteris limbosperma.*
4386	Witherslack Hall – *A. ceterach.*
35/40. 4102	Troutbeck – *C. fragilis, D. abbreviata.*
	Yorkshire
44/00. 0304/05	Raven Stones Brow, valley below – *Athyrium filix-femina, D. pseudomas.*
44/01. 0317	Booth Wood – *D. pseudomas.*
44/14. 1540/41	Spring Wood, Baildon – *D. pseudomas.*

WEEK MEETINGS

Arran – 31 July/7 August. We paid a third visit to Arran this year. The findings of the previous visits in 1968 and 1969 have not yet been published as it was recognised that more work had to be done on the ferns of the Island. Consequently this will be a composite report, but an interim one, for it is considered that more has still to be done to complete the survey. The visits were inspired by some wishful thinking that the rare Killarney Fern, *Trichomanes speciosum*, could still exist on the Island in spite of the fact that it had disappeared a very long time ago due to uncontrolled collecting in the days of the Victorian Fern Craze when many of the books published gave detailed descriptions of the known habitats on Arran and other places. For this reason the fern is now extremely rare, if still existing, in Killarney, the area in Ireland from which it got its name, because of its one time abundance there. We reasoned that Arran is off the beaten track for fern hunting, and during the many years which have elapsed since the Craze some overlooked bits of the plant may have survived and helped to spread it once again. Let me say straight away that hunting in all its old known haunts and in a large number of other places on the Island likely to harbour it, has failed to rediscover the fern although we still feel strongly that it may have survived, hidden away in some inaccessible place – and if during future visits we DO find the Killarney Fern, rest assured it will remain a closely guarded secret, like that of the rare Slipper Orchid in its one known habitat somewhere in the north of England.

Only 4 members attended the first meeting but the second attracted 14, among them some of our most active younger members who did a lot of good work penetrating into the more difficult places. This year the attendance was again low and we were 5 in all, Bert Bruty and Jimmy Dyce staying at the centre, the Corrie Hotel in Corrie, and Etta Sommerville, Dr Doreen Milne and Joan Loraine staying at guest houses near by. Etta Sommerville spends time on the Island every summer collecting data for a Flora of Arran which occupies much of her spare time. We have been very fortunate to have her with us on all three visits, for her knowledge of the Island and its plant life has been invaluable to us. We were sorry that the leaders of this year's meeting, James and Margaret Merryweather, had to drop out at the last moment, but their prepared notes as well as some from Clive Jermy who visited Arran earlier in the year, were very useful to us. Our plans were to hunt in as many of the places not previously visited as we could during the week, but even so we are still far from having completed the survey of the Island.

A feature of Arran along a large part of its coastline is the raised beaches backed by cliffs about 100 to 300 feet inland. These cliffs, many of them red sandstone, are eroded into caves and deep gullies, many of them very wet, and they were the habitats in which the Killarney Fern enjoyed a sheltered existence until disturbed by man. During our first two visits we concentrated a lot of time on these cliffs, especially on the east coast from Brodick to Sannox and on the west from Catacol in the north to Drumadoon Point near Blackwaterfoot. Most of the Island's ferns grow in the lush conditions along the foot of these cliffs, well sheltered in places with shrub and woodland combined at times with moss covered boulders, and in others by boulder screes. Particularly in the east and north this is the home of Arran's most beautiful fern, *Dryopteris aemula*, which flourishes so abundantly that I always think of Arran as the Aemula Isle.

The road up the coast from Brodick to Sannox follows the line of the cliffs which run along on the left with a stretch of boggy ground between them and the road for parts of the way. At their base the trees, shrubby growth and mossy boulders give protection to some of the richest fern flora and we have noted 25 species from the area, many of them growing in profusion and to a large size, such as *Athyrium filix-femina, Dryopteris austriaca, D. filix-mas, D. pseudomas,* along with *Blechnum spicant*, in more open places *Oreopteris limbosperma*, and of course *Pteridium aquilinum* which threatens to swamp everything. It seemed to us this year that it is even more widespread than on our previous visits. The climate of Arran certainly suits it and in places we had to struggle through forests of this fern growing up to 6 and 8 feet high. Colonies of *Phegopteris connectilis* cascade over wet rocks and down the slopes, *Polypodium interjectum* and *P. vulgare* creep over rocks and on trees, *Asplenium scolopendrium* is common on the damp cliff faces and in the detritus at their bottoms, and there is the occasional *Osmunda regalis* and *Polystichum aculeatum.* The moss on the large boulders is in places completely usurped by *Hymenophyllum tunbrigense* and *H. wilsonii*, the latter much the more common. Through it all grows the lovely *D. aemula* with its crispy fronds of rich green, on the rocks, the cliffs, the sloping banks and in the rock crevices, very much at home and asserting its right to dominance. In more open places there is *D. assimilis* and on walls in Corrie, including the harbour walls, grows *A. adiantum-nigrum, A. ruta-muraria* and *A. trichomanes*, and around Corrie where the carboniferous limestone and calciferous sandstone outcrop some *Cystopteris fragilis* can be seen. On the cliffs at Sannox is *A. marinum* and near here also, the horsetails *E. arvense, E. palustre* and *E. sylvaticum* can be found.

Another very rich fern area is the north coast from Lochranza to the Cock of Arran and round to Laggan. The road from Sannox to Lochranza cuts inland over the high shoulders of the northern hills, leaving this rather wild corner of the coast to the walker. There is now a public pathway right round this part of the coastline, a magnificent walk of some 8 to 10 miles, but very rough in parts. An intermediate path cuts across the hills direct to

Laggan from Lochranza, but most of the way is bare hillside with only bracken and a few scattered ferns, *B. spicant, D. austriaca, D. pseudomas, P. vulgare, O. limbosperma* and also *Gymnocarpium dryopteris* which can at times be found in the most unlikely spots. For fern hunting the preferable route is from South Newton on Loch Ranza. The way for the first mile or so is easy going with the rough sloping ground well back from the sea, but then the hills draw right up to the water-line and the way, except at low tide, is over the piled huge rocks of a vast boulder scree, extending for about a mile, called An Scriodan. Round the Cock the high cliffs tower up from near the water but there is a path under them which is easy again for the rest of the way.

Near South Newton ferns are not prolific, only some of the more common species being noted, but there is a patch of *H. wilsonii* on some wet rock. In the North Newton area the terrain becomes rougher with some narrow corries in which *P. setiferum* grows, along with *A. adiantum-nigrum, A. scolopendrium, A. trichomanes* and *P. vulgare.* On the more open ground *A. filix-femina, B. spicant, D. austriaca, D. pseudomas* and *O. limbosperma* become more plentiful and *D. aemula* makes itself evident again but in small numbers. Beyond Rubha Creagan Dubha speedy movement is impossible over An Scriodan, and the scramble over the boulders — preferable for the fern hunter even at low tide — discloses a wealth of ferns in all the crevices and hollows. *P. setiferum* is abundant and the conditions are perfect for *A. scolopendrium,* the dryopteris species, including some *D. filix-mas, A. filix-femina,* and *O. limbosperma* which all grow strongly, as well as some *A. adiantum-nigrum, A. trichomanes* and *P. vulgare,* while a patch of *H. wilsonii* was noted struggling for existence on some dry rock. A pleasing discovery was a small colony of *Ophioglossum vulgatum* growing happily in a small grassy patch. At the Cock of Arran there are deep corries in the cliffs down which streams cascade, ideal places for *T. speciosum* but none was found in these, some of its erstwhile abodes on the Island. The area is rich in other species and in addition to those already recorded from An Scriodan, *G. dryopteris, P. connectilis* and *A. marinum* are to be found. The conditions in the corries suit *H. wilsonii* which is widespread on the wet rocks, but the great feature of this part is the superabundance of *D. aemula.* With *P. aquilinum* it is the dominant fern, growing thickly and extensively on all the slopes, under the bracken as well as in the clearings, in the corries and on the rocks which are festooned with young plants. Nowhere have I seen such a prolific growth of this most beautiful of our British fern species. Beyond the Cock the ground becomes more sloping again with scattered woodland and while ferns continue to be numerous the number of the species are fewer. *D. aemula* continues as a dominant one all the way round to some rough wooded and rocky slopes to the north of Laggan where it is in very strong competition with the bracken but so far is managing to survive successfully. In places the sheltered rocks support good colonies of *H. wilsonii.* South of Laggan the steep slopes are cut by occasional shallow corries which contain good fern populations. In them and along the open hillside and in the shelter of boulders 14 species were noted, *A. adiantum-nigrum, A. marinum, A. scolopendrium, A. trichomanes, A. filix-femina, B. spicant, D. aemula, D. austriaca, D. pseudomas, E. arvense, H. wilsonii, O. limbosperma, P. vulgare* and *P. aquilinum.* Along this north and north-east coastline we recorded a total of 18 species, but there was a marked scarcity of *D. filix-mas* and a total absence of *P. aculeatum.* An old record exists for *H. tunbrigense* but we have been unable to find this fern. One non-fern find by Etta Sommerville was the tiny *Pinguicula lusitanica,* a delightful miniature butterwort which also grows on the west coast near Catacol.

Little exploration has been done between Laggan and North Sannox due to lack of time but where we have hunted at the Sannox end in the Leac Gharbh woods and rocks, only a very few fern species, the more common ones, were noted along with some *P. connectilis.* At the Fallen Rocks and beyond to Corloch where the cliffs form a half circle away from the coast along the top of a steep rise of about 700 feet, there is possibly good fern country which will repay investigation.

To the west of Lochranza along the cliffs between Coillemore Point and Catacol ferns are abundant and 18 species can be seen along this short part of the coast. The common species are all present including, of course, *D. aemula* while *D. filix-mas* is not quite so retiring. *O. regalis* can be seen on the cliffs well out of reach of acquisitive hands, both *P. interjectum* and *P. vulgare* are there and some *H. wilsonii, P. connectilis* and *P. aculeatum.* The lovely little *Selaginella selaginoides* grows in damp places and at Catacol Bay a flourishing colony of *Lycopodiella inundata* can be seen near the bridge. A short distance inland from here a small stream flows into the main burn from the south side through a narrow wooded corrie which has a rich fern flora; *A. filix-femina, B. spicant, D. aemula, D. austriaca, D. filix-mas, D. pseudomas, H. wilsonii* and *P. connectilis* all grow in abundance and where the main stream is joined *A. adiantum-nigrum, A. trichomanes* and *P. vulgare* grow on the stone walls, with *O. limbosperma* on the open slopes.

Further south there are very promising habitats which were once occupied by the Killarney Fern. All of them have been searched along the stretches of the west cliffs which are so well protected by barriers of bramble, nettle and bracken as to be well-nigh impenetrable without the aid of a machete to hack a way through. Between Catacol Bay and Immachar Point more of the low lying ground is cultivated so ferns are fewer. We have noted 13 species from this area, *A. adiantum-nigrum, A. trichomanes, A. filix-femina, B. spicant, D. aemula, D. austriaca, D. filix-mas, D. pseudomas, O. limbosperma, P. interjectum, P. vulgare, P. aquilinum* and at Immachar Point there are some good colonies of *A. marinum* on the cliffs. From here to Dougarie the slopes are steep and densely wooded making hunting very difficult. Near Balliekine there is abundant *P. setiferum* in a deep ravine and along the slopes, and with it are *P. aculeatum, A. scolopendrium, A. filix-femina, B. spicant, D. austriaca, D. filix-mas, D. pseudomas, P. connectilis* and the hybrid *D. X tavelii.*

Fern species are more numerous again, although scattered, in the stretch between Dougarie and Machrie and all those listed in the previous paragraph can be found with the addition of *A. ruta-muraria* at Machrie where also, *A. marinum* is found on the sea rocks, and *E. arvense* is to be seen. Sandstone cliffs run for some miles along the coast to the south of Machrie and are another of the old recorded haunts of *T. speciosum.* Again we have forced our way through the jungle of growth guarding the wet chimneys, caves and other likely places in search of the missing fern, but all in vain. Other species are abundant in this area from Tormore to Drumadoon and 18 have been recorded by us: *A. marinum, A. scolopendrium* and *A. trichomanes* are plentiful on the rocks all along, as is *P. interjectum* but we noted a complete absence of *P. vulgare* which is almost exclusively the common polypody in other areas we have visited. There is some *A. adiantum-nigrum, O. limbosperma* and *P. connectilis,* and a few plants of *D. aemula* and *P. aculeatum* while *O. regalis* is found in damp cliff crevices. The other species are *A. filix-femina, B. spicant, D. austriaca, D. pseudomas,* the very occasional *D. filix-mas, E. fluviatile, E. palustre* and the ubiquitous *P. aquilinum.*

Drumadoon to Slidderywater Foot has always appeared to us to be an uninteresting fern part of the Island and we have tended to pass over it quickly. Certainly, a stop at Slidderywater Foot gave us a list of only 3 ferns – and one of them was bracken! – plus the two common horsetails. For a part of the way the road runs close to the coast but on the high ground, and it may be there is good fern ground on the rocky slopes by the water's edge. Inland on Corriecravie Moor and along the Allt Duilleachry which drains the moor, a few of the more common species grow but near Torr a' Chaisteil, an ancient Celtic fort, marked "Dun" on the map, there is a fine stand of *E. telmateia.*

At Lagg ferns become abundant again and the Kilmory Water inland from the hotel flows through a fern paradise. The number of species present is modest, only 14, but among them are *A. scolopendrium* in super-abundance, *P. aculeatum* common and strong-growing, and a large colony of *E. hyemale* which is the dominant form of plant life on an island over 100 feet by 30 feet formed by the division of the stream's course for a short distance. The surrounding water seems to contain the horsetail to the island where its growth is very congested. Near the hotel *A. adiantum-nigrum, A. trichomanes* and *P. vulgare* grow on the walls, and along the Water the woodland ferns *A. filix-femina, D. austriaca, D. filix-mas, D. pseudomas* and the hybrid *D. X tavelii,* along with *B. spicant*, flourish luxuriantly but in places are swamped by *P. aquilinum.* On the steep banks of the Water *P. aculeatum* looks very happy and *A. scolopendrium* is in profusion while in some places *P. interjectum* is to be seen, chiefly on trees. The terrain gets rougher further inland until in about half a mile the junction with Allt Mor Cloined is reached. This secondary stream emerges from a deep narrow corrie which is exceedingly difficult to penetrate after about 100 feet but the fern riches consisting of the same species continue in even greater abundance. This corrie continues for some way until the stream is accessible again near Cloined but in its hidden depths many other rarer ferns may be lurking. It is only this year that this place was discovered and if we had had some of our young vigorous members with us it is possible that the corrie could have been fully explored. Further up near Cloined where the stream becomes open again, more *E. hyemale* grows along with *E. arvense, E. sylvaticum* and *E. telmateia.* Ferns are scattered, consisting of some of the more common species. At Kilmory Church *A. adiantum-nigrum, A. ruta-muraria, A. trichomanes* and both *P. interjectum* and *P. vulgare* grow on the walls, and nowhere else on the Island had we seen the first two spleenworts growing in such profusion. Alas! the walls have now been re-pointed, and the ferns are not now so abundant, although still there in goodly numbers.

The south and south-east coasts have also been very little explored, again possibly because the fern interest seems to be lacking, but in this we may have erred. Short visits were paid to Bennan Head to look in vain for *Botrychium lunaria* in its only recorded Arran station, and to Levencorroch where the ferns seen were the common ones, few in number, but they did include another colony of *E. telmateia*; this also grows on the banks of a stream behind Whiting Bay, another area we have dealt with only very sketchily. At Lamlash the old ruined Kilbride Chapel has many ferns on its walls and on the stone dyke surrounding the churchyard but the species are few, consisting only of *A. ruta-muraria, A. trichomanes* and *P. vulgare,* with some *A. filix-femina, D. filix-mas* and *D. pseudomas* growing in odd corners.

The only other part of the coast fully explored by us is the Corrygills area to the south of Brodick. The roadside and a large wood at South Corrygills support an extensive fern population although only 10 species are to be found, *A. scolopendrium, A. filix-femina, B. spicant,* *D. aemula, D. austriaca, D. pseudomas, O. limbosperma, P. connectilis, P. vulgare* and *P. aquilinum.* Along a stream in the wood it was noticed that *D. austriaca* was dwarf in size and many plants had a crispness which suggested hybridity with *D. aemula.* At Corrygills Point, reached by a rough steep track running down to the coast, the species are much the same but on the side of the track *E. sylvaticum* grows, also some *D. carthusiana* not characteristically tall but short and more triangular as it often appears in many places. This fern has also been found along the coast nearer Brodick.

Although most of Arran's ferny places are to be found round the coast there still remain many other localities with abundant fern populations, chiefly along the many burns which flow from the interior, some of them in narrow deep valleys and, in places, inaccessible corries. The best of them are in the south half of the Island, chiefly on the east side, below the dividing line from Brodick to Machrie. Arran can be likened to a miniature Scotland with high mountains to the north of the dividing line and flatter undulating land, much of it arable, in the south. The road across from Brodick to Machrie marks roughly the division and north of this no roads penetrate the mountainous interior which is a granite massif as wild and impressive as any scenery in the Western Highlands, with high serrated peaks and precipitous crags and the shapely peak of Goat Fell standing out as the highest point. Two ways lead into these mountains, up Glen Sannox and further south near Brodick, by Glen Rosa. Neither of these open glens is good fern country and in the former only 12 species, none of them in abundance, have been recorded. Among them are *G. dryopteris* and *P. connectilis* and on the high slopes at the head of the Glen leading to the jagged peak of Cir Mhor (which means "Great Comb" – a most suitable name) and Caisteal Abhail, is the Island's only recorded (albeit pre-1930) habitat for *Cryptogramma crispa*, a record we were able to re-establish; *Huperzia* (formerly *Lycopodium*) *selago* and *S. selaginoides* can also be found in the Glen. A smaller glen leading into the hills from the east side is that of the Corrie Burn. An exploration up this is memorable because of the rain which poured mercilessly down and drove us back cold and soaked through, but not before we had noted 13 species with the realisation that there are probably several more awaiting more propitious weather conditions to be found. Those seen by us were *A. filix-femina, B. spicant, D. aemula, D. austriaca, D. pseudomas, E. arvense, E. palustre, O. limbosperma, P. vulgare, P. aquilinum* and also *D. assimilis* and both hymenophyllums. This glen runs up to the foot of Goat Fell and a climb up this mountain revealed only very few ferns, *D. assimilis, B. spicant, O. limbosperma* and *P. connectilis* as well as *H. selago*, but again it was a wet day which discouraged enthusiastic fern hunting.

In the north an exploration up Gleann Easan Biorach again produced few results but this may be because the best part for ferns up a deep narrow corrie down which the burn drops in a series of waterfalls for half a mile is impassable and cannot be searched. Only *A. scolopendrium, A. filix-femina, B. spicant, D. austriaca, D. pseudomas* and *O. limbosperma* were noted, along with *H. wilsonii* on the rocks at the lower end of the corrie. Nearer Lochranza *E. fluviatile* grows in Loch a' Mhuilinn. Penetrating inland up Glen Catacol 8 species were seen on the hills and the screes on the west side of the Island, *A. filix-femina, B. spicant, D. austriaca, D. pseudomas, H. selago, O. limbosperma, P. connectilis* and *P. aquilinum.* These records show that ferns appear to be fewer in numbers in the interior of the northern half of the Island but we cannot say definitely that they present the true picture. Certainly, they have been pretty consistent from the various places we penetrated all round the massif, but there is a lot of ground in the area, high and low, exposed and sheltered, dry and wet, which could support many other species.

In the south interior, sheltered lush conditions suitable for ferns are more common except on the west which is flatter and more exposed and has fewer burns. The only long one is Sliddery Water which is very open with few ferns. Up its valley the Ross Road crosses the Island to Lamlash and a journey across it revealed only *A. filix-femina, B. spicant, D. austriaca, D. pseudomas, E. arvense, O. limbosperma, P. interjectum* and *P. aquilinum.* Further north Clauchan Glen is very much better. From Pien, a few miles inland from Blackwaterfoot, it penetrates into the southern hills and on the south side a stream drops down from the high Loch Cnoc an Loch in a narrow wooded valley with waterfalls. A scramble up this very ferny place produced 14 species, but very much the usual mixture, *A. adiantum-nigrum, A. ruta-muraria, A. trichomanes, A. filix-femina, B. spicant, D. austriaca, D. filix-mas, D. pseudomas, E. arvense, O. limbosperma, P. vulgare* and *P. aquilinum* with in addition *H. wilsonii* and *P. aculeatum.* On the open ground in Clauchan Glen there is a larger selection of species along the burn and on the hillsides and 20 were recorded, much the same as in the wooded ravine below but there was no *A. ruta-muraria* and *H. wilsonii,* and additionally *C. fragilis, D. aemula, D. assimilis, E. palustre, E. sylvaticum, G. dryopteris, P. connectilis,* and *P. interjectum.* The *D. assimilis* was found high up, some of it dwarf and some in rock crevices with long stipes.

On the east Glen Cloy runs inland from Brodick and nurtures a large selection of ferns which are equally abundant on the lower ground and on the hills at the head of the Glen – 22 species were recorded. In the sheltered lowland conditions along the wooded banks of the river grow *A. filix-femina, B. spicant, D. austriaca, D. filix-mas, O. limbosperma, P. connectilis, P. vulgare* and of course plenty of *P. aquilinum.* The Glen is a long one with long heather clothing the hillsides at the top end, in which *G. dryopteris* is rampant along with *B. spicant* wherever these ferns have a chance to see daylight, and at the foot of the cliffs can be found *A. trichomanes, P. connectilis, P. vulgare* and *P. aculeatum*, while on the way up the Glen *D. carthusiana* appears at times. Skirting round the cliffs and up the bed of a stream to a higher plateau below Craig nan Fitheach there are calciferous sandstone exposures in which *D. villarii* possibly grows as it is recorded from this area but we did not find it. An old record for *A. viride* was re-established, and *C. fragilis, D. assimilis* and *H. wilsonii* found. On the high ground also, *H. selago* and *S. selaginoides* grow with dwarfed but well-established *E. sylvaticum*, seemingly quite happy in its exposed habitat on the plateau. Lower down there is *D. aemula* in some woodland. This whole area proved most interesting and should repay further visits.

The Benlister Burn comes out in Lamlash Bay and the Glen which runs inland on the north side of The Ross has an interesting fern flora. The Burn flows in places in open wooded country and in others through deep ravines which fortunately during visits by us have been accessible enabling us to examine the damp shaded rock walls in their cool depths. *A. viride* is a fern which we have found far from common on Arran and has been seen by us in only three places, one already mentioned at the head of Glen Cloy and another to be commented on later, on the south side of The Ross. Here in the Benlister Burn corries it grows in quantity, along with *A. adiantum-nigrum, A. ruta-muraria, A. scolopendrium, A. trichomanes, H. wilsonii, P. connectilis* and *P. vulgare.* The larger ferns are common all along the Glen, *A. filix-femina, D. austriaca, D. filix-mas, D. pseudomas,* and in the sheltered ravine conditions abundant *P. aculeatum.* On the open ground is plentiful *B. spicant, O. limbosperma* and *P. aquilinum* and the horsetails *E. arvense* and *E. palustre* are also there. Higher up the Glen *D. aemula* and *G. dryopteris* can be added to the list along with more *P. aculeatum.* Further up still at the waterfalls near the top 16 species have been found, *A. trichomanes, A. filix-femina, B. spicant, C. fragilis, D. assimilis, D. austriaca, D. filix-mas, D. pseudomas, E. sylvaticum, G. dryopteris, H. selago, H. wilsonii, O. limbosperma, P. connectilis, P. interjectum* and *P. aquilinum.* On the crags at the top the numbers are reduced, only 6 species being seen, *B. spicant, D. abbreviata, D. assimilis, G. dryopteris, P. connectilis,* and of very great interest *C. crispa* which we have only found previously at the head of Glen Sannox where the find re-established an old record; the Benlister Glen find is a new record for Arran.

The older series of the one inch Ordnance Survey map shows an interesting area a little over a mile inland from Lamlash Bay on the south side of The Ross road. A many-branched stream flows north from the hills, all of the branches marked as narrow wooded valleys. The latest edition of the map shows the whole area as a large Forestry Commission forest and the detail of the narrow valleys is lost in the general green colour on the map. A road runs through the forest, open to the public, but to get off it and down to the streams is like fighting through a tropical jungle. Where there are no closely planted conifers there is equally close growing bracken and to force a way through to the stream nearest the road was all we could accomplish. We followed it down to the main burn, finding it in places almost impossible to negotiate, but it is good fern country and presumably the other adjacent valleys are equally good although possibly containing no other species than the ones we found, 13 in number, *A. scolopendrium, A. trichomanes, A. filix-femina, B. spicant, D. aemula, D. austriaca, D. pseudomas, H. wilsonii, O. limbosperma, P. connectilis, P. aculeatum, P. aquilinum* and a polypody which we were unable to determine. Some very deep and narrow parts where the stream had cut its way into the rock seemed ideal places for *H. tunbrigense* and other ferns which are probably hidden away somewhere along these small valleys.

Further up The Ross road a stream flows north from Urie Loch between the hills Gar Bheinn and Squiler. It is a hard tiring walk from the road through long heather to reach the burn which is a typical hillside one with waterfalls and narrow ravines. In the heather *G. dryopteris* and *E. sylvaticum* are common and on some of the open ground *D. assimilis* grows, also *D. carthusiana* in the wetter places. We also recorded *A. filix-femina, B. spicant, D. austriaca, D. pseudomas* and the inevitable *P. aquilinum.* On the rocks higher up *C. fragilis* was common, growing profusely in places, in company with *A. trichomanes, P. vulgare* and in one place quite a good colony of *A. viride.* Some of the wetter rocks are covered with *H. wilsonii.*

Much more of Arran remains to be explored although I think we can claim to have sampled pretty fully the different types of habitat existing on the Island. In all we have recorded 31 ferns and 10 allies, a really excellent bag for any part of the British Isles. Many of them are new records and old records re-established but there are many speces we have not seen, *A. ceterach, G. robertianum* and *P. australe* which have not been recorded but may be found in several suitable localities, *A. distentifolium, B. lunaria* and *Diphasiastrum* (formerly *Lycopodium*) *alpinum* and of course *T. speciosum* all pre-1930 records awaiting confirmation, and *D. villarii, Isoetes lacustris* and *Lycopodium clavatum* for which up-to-date records exist.

I append a list of species found by us which are new to their 10km squares in the *Atlas of the British Flora* or appear as pre-1930 records.

Nat Grid ref.

16/83.	8639,8739	Balliekine – *Asplenium scolopendrium, Dryopteris X tavelii, Phegopteris connectilis, Polystichum aculeatum, P. setiferum.*
	8935	Dougarie/Machrie – *A. scolopendrium, Oreopteris limbosperma, Polypodium interjectum, P. vulgare.*
	8829/30	King's Cave/Drumadoon Point – *A. scolopendrium, Equisetum fluviatile, P. interjectum.*
	8832	Leacan Ruadha – *A. scolopendrium, E. palustre, O. limbosperma, P. connectilis, P. interjectum, P. aculeatum.*
	8934	Machrie – *A. scolopendrium, O. limbosperma, Osmunda regalis, P. interjectum, P. vulgare, P. aculeatum.*
	8831/32	Tormore/King's Cave – *A. scolopendrium, O. regalis, P. interjectum.*
16/84.	8948	Craw – *D. pseudomas.*
	8847	Rubha Glas – *D. pseudomas.*
16/92.	9521	Allt mor Cloined – *D. X tavelii.*
	9329	Clauchan Glen, south – *P. connectilis.*
	9929	Gar Bheinn/Squiler, burn between – *A. viride, Cystopteris fragilis, D. assimilis, D. carthusiana, Gymnocarpium dryopteris, Hymenophyllum wilsonii.*
	9521	Kilmory Water – *D. X tavelii.*
16/93	9931	Benlister Glen, high – *D. aemula, P. vulgare.*
	9931	Benlister Glen, waterfall – *D. assimilis, P. interjectum.*
	9931	Benlister Glen, crags at top – *Cryptogramma crispa, D. abbreviata, D. assimilis.*
	9230,9330,)	Clauchan Glen – *A. adiantum-nigrum, D. aemula, D. assimilis, P. interjectum, P. vulgare.*
	9430)	
	9833	Craig nan Fitheach – *A. viride, D. assimilis, P. vulgare.*
	9933	Gleann Dubh – *D. carthusiana.*
	9934	Gleann Dubh/Glen Ormidale – *P. vulgare.*
	9833	Gleann Dubh, top – *D. aemula, D. assimilis.*
	9230	Pien – *A. adiantum-nigrum, P. vulgare.*
16/94.	9048)	Catacol Bay – *A. adiantum-nigrum, D. aemula, D. pseudomas.*
	9148/49)	
	9449	Gleann Easan Biorach – *A. scolopendrium, D. pseudomas.*
	9843/44)	Glen Sannox – *G. dryopteris.*
	9944/45)	
	9743	Glen Sannox, screes at head of – *C. crispa, D. pseudomas.*
	9941	Goat Fell, top – *D. assimilis.*
	9449	Loch a' Mhuilinn – *E. fluviatile.*
	9146/47	Meall nan Damh – *D. pseudomas.*
16/95.	9452	An Scriodan – *A. adiantum-nigrum, A. scolopendrium, D. aemula, D. pseudomas, Ophioglossum vulgatum, O. limbosperma, P. setiferum.*

16/95.	9150	Catacol, 1 mile north of – *A. adiantum-nigrum, D. aemula, D. pseudomas, O. limbosperma, O. regalis, P. connectilis, Selaginella selaginoides.*
	9552	Cock of Arran – *A. adiantum-nigrum, A. marinum, A. scolopendrium, D. aemula, D. pseudomas, E. arvense, G. dryopteris, O. limbosperma, P. connectilis.*
	9651	Cock of Arran, east of – *D. aemula, E. arvense.*
	9750	Creag Ghlas Cuithe – *D. pseudomas, G. dryopteris, O. limbosperma.*
	9750	Laggan – *A. adiantum-nigrum, A. marinum, A. scolopendrium, D. aemula, D. pseudomas, E. arvense, O. limbosperma.*
	9651,9751	Laggan, 1 mile north of – *D. aemula, O. limbosperma, P. setiferum.*
	9250	Lochranza/Catacol road – *A. adiantum-nigrum, D. aemula, D. pseudomas, O. limbosperma, P. connectilis, P. aculeatum, S. selaginoides.*
	9350/51	Lochranza/South Newton – *A. adiantum-nigrum, D. pseudomas.*
	9351	North Newton – *A. adiantum-nigrum, A. scolopendrium, D. aemula, D. pseudomas, O. limbosperma, P. connectilis, P. setiferum.*
26/02.	0129	Forestry Commission forest, south side Monamore Glen – *A. trichomanes, D. aemula, D. pseudomas, H. wilsonii, O. limbosperma, P. connectilis, P. aculeatum.*
	0021	Levencorroch – *D. pseudomas.*
	0425	Whiting Bay – *D. pseudomas.*
26/03.	0030/31) 0130)	Benlister Glen – *A. viride, D. pseudomas, E. palustre, H. wilsonii, O. limbosperma, P. connectilis, P. aculeatum.*
	0136	Brodick – *D. pseudomas.*
	0235,0335	Brodick Pier, shore south of – *D. carthusiana, D. pseudomas, E. palustre, E. sylvaticum, O. limbosperma.*
	0239	Carlo, south of – *D. aemula, D. pseudomas, H. wilsonii, O. limbosperma, O. regalis, P. connectilis.*
	0035	High Glencloy – *D. pseudomas, O. limbosperma.*
	0332	Kilbride Chapel, Lamlash – *D. pseudomas.*
	0231	Lamlash, north – *D. pseudomas.*
	0335,0435	North Corrygills – *D. aemula, D. carthusiana, D. pseudomas, O. limbosperma, E. sylvaticum.*
	0334,0434	South Corrygills – *D. aemula, D. pseudomas, O. limbosperma, P. connectilis.*
26/04.	0241/42	Corrie, south of – *O. limbosperma, O. regalis.*
	0242	Corrie Burn – *D. aemula, D. assimilis, H. wilsonii, O. limbosperma, P. vulgare.*
	0046	Glen Sannox Road – *O. limbosperma, P. vulgare.*
	0145	Mid Sannox – *O. limbosperma.*
	0144/45	Mid Sannox, south of – *C. fragilis, H. wilsonii, O. limbosperma, P. interjectum, P. vulgare, P. aculeatum.*
	0145/46	Mid Sannox/North Sannox, sea cliffs – *A. marinum, C. fragilis, D. aemula, H. wilsonii, O. limbosperma, P. vulgare, P. aculeatum.*
	0146	North Sannox – *D. aemula, D. assimilis, E. sylvaticum, O. limbosperma, P. vulgare.*
	0046,0146	North Sannox Woods – *D. aemula, O. limbosperma, P. vulgare.*

Ilfracombe, North Devon – 4/11 September. The drought conditions affecting the whole country, and particularly the west where the water shortage was very serious, made us seriously question if ferns would be sufficiently alive to make the meeting worth our while. Nevertheless, we set off hopefully for the West Country and we were not disappointed. Our centre was the Langleigh Park House Hotel in extensive wooded grounds in the south-west of Ilfracombe, and for once it was most pleasing to find our complete party all staying under the same roof. It was most gratifying too to have an attendance of 12 members, Win Baines, Eileen Brightman, Bert Bruty, Marjorie Castellan, Jim Crabbe, Jimmy Dyce, Margaret Kingston, Martin and Hazel Rickard, Peter Temple and his sister Pauline Temple-Simmonds, and Gwladys Tonge who all foregathered at the centre on the Saturday afternoon.

On Sunday morning the party set off to explore the local cliffs with *Adiantum capillus-veneris* very much in mind. This fern was to be found occasionally in bygone days all along the cliffs of this south-west coastline but the uncontrolled depredations of the collector virtually wiped it out of existence, and only rarely is it now to be found in some of the more inaccessible places. Ilfracombe was one of its well-advertised habitats and the last positive records we can trace of its continued survival are all from about the middle of the last century. However, there are hidden recesses in the cliffs and in one of these, extremely difficult to reach except by the most agile, we found a flourishing colony with fronds much larger than any we have found in any of the few colonies we know in different parts of the country. In fact, the specimen frond collected was so large that the Secretary, incapacitated by a recent fall and unable to venture on the cliffs, at first refused to believe that it was collected from a wild plant and thought he was being the subject of a leg-pull! This find on our first day was a tremendous fillip to our morale, added to the discovery that ferns in the area were not nearly so badly affected by the drought as we had feared; they could still be found growing well, fresh and green, in most of the many ferny places we visited. Along the cliffs other ferns seen were *Asplenium adiantum-nigrum, A. marinum, A. scolopendrium, Athyrium filix-femina, Blechnum spicant, Dryopteris aemula* – a single plant rather damaged, *D. austriaca, D. filix-mas, D. pseudomas, Polypodium interjectum, P. vulgare,* the hybrid *P. X mantoniae,* and of course *Pteridium aquilinum,* common here as elsewhere in the country. A subsequent short visit to the area on the following day revealed the presence of another colony of the Maidenhair Fern further along the cliffs but it was completely inaccessible. In Ilfracombe itself we noted *Polystichum setiferum* on banks and other places and also *A. ruta-muraria.* Later in the day we moved along the coast to Lee, a few miles to the west, and the road down to this small place tucked away in a deep hollow by the sea, led through a wooded ravine valley, still unaffected by the drought, where in damp conditions ferns revelled. Hunting along the road and up the nearby Borough Valley we found 14 species, the large woodland species being the common ones, along with *A. scolopendrium, B. spicant* and also *D. X tavelii.* The smaller ferns were not so common and included *A. adiantum-nigrum* – a few plants only, *A. trichomanes, P. interjectum* and along the roadside a colony of the horsetail, *Equisetum arvense.* Quite a good specimen of *A. scolopendrium* 'Cristatum' was collected. A short visit to Morthoe completed the day and there we noted *A. billotii* on the churchyard walls, accompanied by *A. adiantum-nigrum, A. ruta-muraria* and *P. interjectum.*

On Monday we hoped to have Christopher and Mary Potts from Weston-super-Mare with us but they had unfortunately to change their plans. We spent the morning on Braunton Burrows, an extensive area of sand dunes and, in normal seasons, marsh on the north side of the River Taw estuary to the west of Barnstaple. We were joined by Mrs Tulloh, one of the very active botanists in the area. She was able to lead us to interesting plant habitats on the Burrows, in particular to a place where *Ophioglossum vulgatum* grows but the fern had already gone below ground for the year. In the same place, however, *E. variegatum* grows, very dwarfed by the dry state of the ground, and near it was some *E. arvense.* Both polypodies, *P. interjectum* and *P. vulgare,* were also seen growing strongly side by side in the sand.

In the afternoon a visit was paid to the Barnstaple Public Library which houses several old herbaria, among them one of ferns donated by Miss Amelia Griffiths over 100 years ago. We browsed through this and other herbaria for some time, hoping to find some information on the whereabouts of some of the rarer ferns in the area but we got no real help from them. It is of interest to record that stacked away among the old books was a bound copy of the 6th series of the Jones Nature Prints, an unique publication by Col A M Jones in the seventies of last century depicting impressions of actual fern fronds from the varieties in existence at the time. We travelled back via Muddiford through a deep wooded valley and at Milltown turned into a steep and narrow lane leading to Whiddon. It was full of ferns and provided some good hunting; all the more common species were there with quite a lot of *A. adiantum-nigrum* and both the usual polypodies on the steep banks, *A. scolopendrium* was everywhere and on the higher ground *P. setiferum* became quite abundant. An interesting but minor variety of the last-named fern was seen, very soft and setose with semi-imbricate pinnules, but it was not collected.

On another fine fresh morning we set forth on Tuesday to explore further eastwards in the Simonsbath district. Our first stop was at Kentisbury, a quiet little place lying in a hollow of the hills, to follow up a very old record for *A. ceterach* on the churchyard walls. It is still there but with its fronds well curled up to conserve its scanty water supplies; with it were *A. ruta-muraria, A. trichomanes* and *P. interjectum,* and other ferns seen around the church were *A. filix-femina, D. filix-mas, D. pseudomas, A. scolopendrium* and *P. aquilinum.* A short distance before Simonsbath a stop was made to visit the colony of *Cryptogramma crispa* which grows in the River Barle valley but in the absence of the Secretary who was comfortably installed in one of the cars writing these notes and was the only one in the party who knows the exact location of the colony, it was not found. In the same area are two colonies of *Phegopteris connectilis* which with the previously mentioned fern are two of the rarest species in the West Country. This time a road leads right up to within a few yards of our objective and everyone was able to admire this lovely creeping fern growing strongly in some boggy ground. A very fine large clump of *A. filix-femina* 'Incisum' of more than ordinary quality was found in the same place and a few crowns were collected. Still in search of rarities, another fern of the area, *Gymnocarpium dryopteris* which with *C. crispa* and *P. connectilis* is far from rare in other parts of the country, was visited in its one and only station in the West Country. Two very small clones with only a few fronds each were seen and one is left with the feeling that this fern is on its way out in this part of the country. Not many other ferns grow near it and we recorded only *A. filix-femina, B. spicant, D. austriaca, D. filix-mas, O. limbosperma, P. vulgare* and *P. aquilinum.*

A reduced party, joined once again by Mrs Tulloh, travelled to Lynton on Wednesday to hunt around Waters Meet in the deep ravine where the East Lyn River and other streams join forces. This wooded valley is full of ferns although the number of species is limited, and only 10 were noted, *A. scolopendrium, A. trichomanes, A. filix-femina, B. spicant, D. austriaca, D. filix-mas, D. pseudomas, Hymenophyllum tunbrigense, H. wilsonii* and *P. setiferum.* The find of *H. tunbrigense* re-established an old pre-1930 record; it was seen as one large patch and *H. wilsonii* as one rather dried up small colony. The most abundant fern was *P. setiferum,* growing in large numbers and varieties were looked for in vain. There is an old record for *A. septentrionale* in the Countisbury district to the east of Lynton but the area is large with so many walls which could harbour the fern that it was like hunting for a needle in a haystack, and, needless to add, our limited search did not reveal it. Only very few ferns were found in this dry and bare spot. The Valley of Rocks near Lynton was little better although more productive of species, but the slopes are well covered with bracken already quite brown and late-autumny looking. The species seen were *A. adiantum-nigrum, A. marinum, A. scolopendrium* and *P. vulgare* on the rocks, and elsewhere *A. filix-femina, B. spicant, D. austriaca, D. filix-mas* and *D. pseudomas.*

Thursday was a free day when we all went our various ways but fern-hunting was still the main activity for some of us. During the morning the extensive grounds of the hotel were explored and 11 fern species recorded, none of them exceptional except that *D. pseudomas* and *A. scolopendrium* were in great abundance. Later, some of us hunted along the coast eastwards and another colony of *A. capillus-veneris* was noted high up on the cliffs, well removed from collectors' clutching hands. It would certainly seem that this fern has not been so completely wiped out of existence on this part of the coast as has been thought.

In Henstridge Wood in a deep valley inland from Combe Martin ferns luxuriate, growing to a very large size in a lush terrain which is a jungle of bracken and bramble. The common ones are the woodland species *A. filix-femina, D. austriaca, D. filix-mas, D. pseudomas* and some *P. setiferum,* along with *B. spicant* and *A. scolopendrium,* and on the trees *P. interjectum* and *P. vulgare.* In a short scramble down through the wood the *D. pseudomas* and *A. scolopendrium* were noted in great abundance. Another very ferny place is the Sterridge Valley to the south of Berrynarbor. In its upper reaches the lane drops steeply down to the north from the high ground and both banks are liberally festooned with ferns, albeit somewhat pruned back by the hedgecutters to make room for traffic. Here the dominant fern was *A. scolopendrium*, draping the banks and growing to a large size, accompanied by *A. filix-femina, B. spicant, D. austriaca, D. filix-mas, D. pseudomas* and some *P. vulgare* and *P. setiferum.* An exploration off the lane and along the stream revealed these species in greater numbers and along with them were *D. X tavelii, P. interjectum* and most pleasing of all quite a good colony of *D. aemula.* Our previous find of a solitary plant near Ilfracombe was a new record for this square so it was most satisfactory to reinforce the record with a good colony of the fern. Some *A. adiantum-nigrum* and *A. trichomanes* completed the list for this lane. Further on we were pleased to add another new record in the shape of *A. ceterach* seen on a wall as we passed through Berrynarbor where we also noted *A. ruta-muraria,* a fern we did not see much of in this square.

Thursday was a day of cold wind and showers, a big change from the weather of the previous days, but although still cold, Friday was brighter, drier and less windy. Our hunting started at Trentishoe Down to the east of Ilfracombe, in search of the fern allies *Huperzia (Lycopodium) selago, Lycopodiella (Lycopodium) inundata* and *Lycopodium clavatum,* all pre-1930 records for the area. We searched the open north-facing hill slopes but the only pteridophytes seen were a few fern species in scanty numbers along the roadside, *A. filix-femina, B. spicant, D. austriaca, D. pseudomas, P. vulgare* and *P. aquilinum.* At Hunter's Inn a few miles further on in the deep wooded valley of the River Heddon the story was very different and ferns were in abundance in very congenial surroundings. We recorded 14 species, *A. adiantum-nigrum, A. scolopendrium, A. trichomanes, A. filix-femina, B. spicant, D. aemula, D. austriaca, D. filix-mas, D. pseudomas, D. X tavelii, P. interjectum, P. vulgare, P. setiferum* and *P. aquilinum.* The *P. setiferum* was abundant all up the road leading inland along the river valley, and also lower down below the Inn. The spleenworts were few in number except *A. scolopendrium* which was almost as abundant as the polystichum and a good crested variety was collected. There were not many polypodies and the common woodland species were in goodly numbers. The *D. aemula* consisted as one fine colony below the Inn. There is an old record for *Osmunda regalis* in a side valley above Milltown but we did not find the fern. Still moving eastwards a short stop was made at Martinhoe Church. On the churchyard walls were three spleenworts, *A. adiantum-nigrum, A. ruta-muraria* and *A. trichomanes,* and in the lane the more common species adorned the banks along with *P. setiferum* in fair numbers. On one part of the bank which was dry and crumbly the variety find of the week was made, looking very sorry for itself, starved and holding on with only a few roots. It was a very promising young *P. setiferum* 'Acutilobum', the type that grows with prostrate curving fronds, looking rather like a star-fish. This should be a very fine fern when it grows to its full size with 2 feet long fronds, and tiny bulbils are already noticeable on its present small fronds. We continued on our way to Lee Bay where ferns are prolific along the road and in the woods above the bay. Down on the cliffs *A. marinum* was found, and higher up 11 species were seen, among them very large-growing *A. scolopendrium* and fine *P. setiferum.* There was some *A. adiantum-nigrum, P. interjectum* and *P. vulgare,* and the common ferns were *A. filix-femina, B. spicant, D. austriaca, D. filix-mas, D. pseudomas* and *P. aquilinum.* Retracing our steps to Woody Bay, very well named, a final hunt for the week resulted in 10 species, *A. scolopendrium, A. trichomanes, B. spicant, D. aemula, D. filix-mas, D. pseudomas, D. X tavelii, P. vulgare, P. setiferum* and *P. aquilinum.* The *aemula* colony was the finest of the week with large-growing fronds.

In all, during the week we found 25 fern and 3 allied species which is the best bag we have had during our many visits to the West Country. It should have been larger, for the *C. crispa* and a colony of *Cystopteris fragilis* not far away from it on some ruined walls which were seen during our last two visits were not seen this time, nor did we find any *D. carthusiana* or *P. aculeatum* — we certainly expected to find the latter. Old pre-1930 records list other species, such as *O. regalis* and there are both pre- and post-1930 records for the allies *H. selago, L. inundata* and *L. clavatum,* as well as other species. It is very seldom we find any worthwhile varieties in this one-time very rich fern-variation part of the country, but this time we found three, *A. filix-femina* 'Incisum' (very much superior to the usual incisums seen fairly frequently in the wild), *A. scolopendrium* 'Cristatum' (a few plants, one of them really good) and *P. setiferum* 'Acutilobum', the best find of all and the finest it has been the Secretary's luck to find in the West Country during his many years fern hunting in that region. All the more pleasing was the fact that it was growing within a few yards of the parked cars and rewarded one of the few very short and somewhat painful walks he was able to undertake.

We had expected to find the ferns in the area so overcome by the prevailing drought that few would be left in a condition likely to give us much encouragement in our hunting but we found this was far from being the case and in most places they were, with some exceptions, looking remarkably fresh and green. *P. setiferum* appeared to be coping particularly well wherever we found it, but in many places the story was very different with *D. filix-mas* and *A. scolopendrium,* both of them tough ferns which one would expect to see resisting more strongly; the male ferns were completely prostrate with shrivelling fronds and large growing scolopendriums were lying in a state of collapse in woods and hanging limp and yellow in colour down roadside banks. Wall ferns of course were also suffering greatly but again it was noted how many of them were succeeding in keeping their fronds fresh, while *A. ceterach* was playing safe with its normal dry weather procedure in some of the colonies we saw, its fronds well screwed up, dry and dead looking, but only awaiting the first refreshing rains to "blossom" out again. On the whole there was little to detract from the pleasure of the week and its success was very much due to the excellent leadership of Martin Rickard who knows the area well and was tireless in his endeavours to ensure that we made the most of the time we spent there.

In the evenings we planned our activities and had discussions on various topics, with an innovation by Jim Crabbe, of a mini-herbarium comprising a specimen of each British pteridophyte which helped to illuminate our thoughts and words.

I append a list of the species found by us which are new to their 10km squares in the *Atlas of the British Flora,* or appear as pre-1930 records —

Nat Grid Ref.

21/44.	4846	Lee — *Dryopteris austriaca, D. pseudomas, D. X tavelii.*
	4545	Morthoe — *Asplenium billotii.*
21/54.	5546, 5646	Berrynarbor — *A. ceterach, Polystichum setiferum.*
	5844	Henstridge Wood — *P. setiferum.*
	5147	Ilfracombe — *P. setiferum.*
	5146	Ilfracombe, Langleigh Park House Hotel — *D. X tavelii, P. setiferum.*
	—	Ilfracombe area, sea cliffs — *Adiantum capillus-veneris.*
	5544, 5545	Sterridge Valley — *D. aemula, D. X tavelii, P. setiferum.*
	5047	Torrs Walk, near Ilfracombe — *D. aemula.*
21/64.	6547, 6548	Hunter's Inn — *D. X tavelii.*
	6949	Lee Bay — *A. marinum.*
	6748	Woody Bay — *D. X tavelii.*
21/74	7448	Waters Meet, Lynton — *Hymenophyllum tunbrigense.*

ADIANTUM CAPILLUS-VENERIS and HYMENOPHYLLUM TUNBRIGENSE in NORTH DEVON

M H Rickard

The records for *Adiantum capillus-veneris* and *Hymenophyllum tunbrigense* made during the Ilfracombe meeting were the first published from native habitats in Vice-county 3 (N Devon) for many years.

According to the more readily available literature *A. capillus-veneris* was last recorded from the area in 1865 in Bellair's *Hardy Ferns.* Subsequently, both Larter in *Botany of North Devon* (1897) and Palmer in *Fauna and Flora of Ilfracombe* (1946) presumed it to be extinct in the vice-county. This was blamed on the depredations of local people selling roots to Victorian tourists. It was all the more surprising, therefore, to find this rare and sought-after fern near Ilfracombe, in a locality clearly described by G S Gibson in 1846, and again later in the week, in another spot reported in 1847 by the Rev W T Bree (famous for Bree's Fern – *Dryopteris aemula*).

The discovery of *H. tunbrigense* was also unexpected. It was found flourishing in a much botanised area in exactly the locality described by Ravenshaw in *Flowering Plants and Ferns of Devonshire* (1860) and again by Larter in 1897. After Larter no local botanist seems to have seen it in this area although there is a more recent vice-county record from near Okehampton in 1926.

These finds are of particular interest. They illustrate the surprising ability of rare ferns to survive the Victorians' trowels even in much publicised localities. Also they show the value of very old literature records without which these colonies might have remained unnoticed for another 100 years!

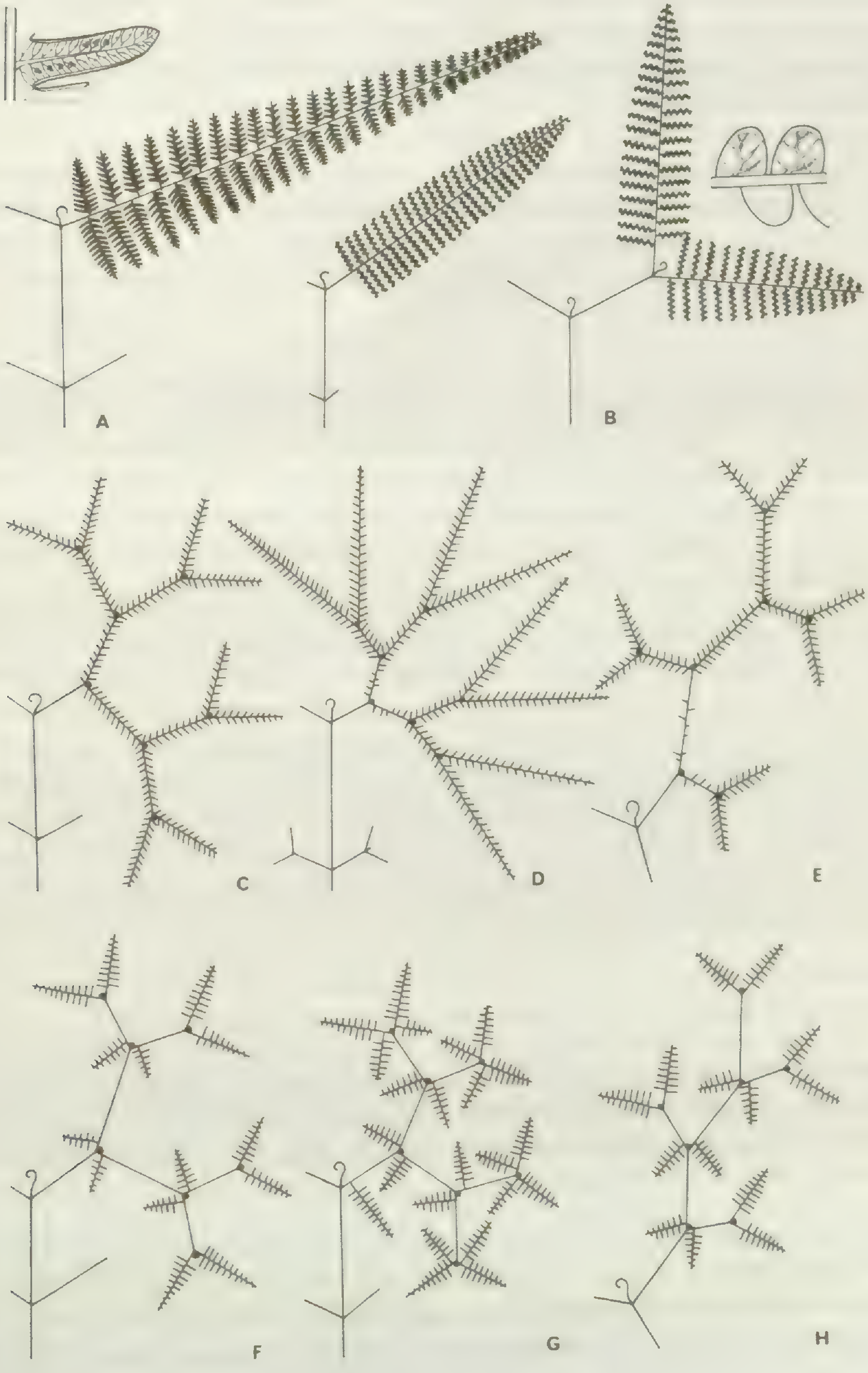
PLANTS OF GLEICHENIACEAE IN CULTIVATION AT KEW

R E Holttum and J R Woodhams

The principal thicket-forming ferns of the tropics belong to this family. Plants of several species were seen by members of the Society who visited Kew on 22 May 1976. The following is a brief summary of the growth-habits within the family, and a statement on problems they present to the cultivator; we have seen no published statement on the latter subject.

The three universal features of growth-habit are: (a) the plants have a long slender branching rhizome, so that they spread rapidly when well established; (b) each frond grows by stages, its apex remaining *temporarily* dormant while a new pair of branches develops, each pair of branches being the same size as the previous pair; (c) the main rachis of the frond is not strong enough to support this continued growth, so that the fronds form a tangled thicket, or if opportunity offers they can use the support of tree-branches on the edge of forest to climb to a considerable height.

These ferns only flourish in the sun. They form thickets when forest has been felled and the ground is otherwise unoccupied; if trees grow up again the ferns are weakened and finally die in the shade.



Diagrams showing various types of branching in Gleicheniaceae.

A: *Gleichenia* subgenus *Diplopterygium*, with drawing of the venation of a leaflet-lobe.

B: *Gleichenia* subgenus *Gleichenia,* with drawing of a leaflet-lobe for comparison with A.

C D E: *Gleichenia* subgenus *Mertensia.* C, *G. truncata* (symmetrical branching); D, *G. hirta* (ultimate branches longest); E, *G. milnei* (alternate inequality).

F G H: *Dicranopteris linearis.* F, typical form; G. var *montana* (accessory branches present at ultimate forks); H, var. *alternans* (showing a condition comparable to fig. E).

The family comprises four distinct groups of species which are sometimes ranked as genera. But three of them have characteristics in common by which they differ from the fourth, so that here two genera are recognised: *Gleichenia* with three subgenera, and *Dicranopteris*. In all but the first subgenus listed below, frond-branches have repeated bifurcations, with a *permanently* dormant apex in the fork. The genera and subgenera are distinguished by the following key.

1. Young parts of the plant covered with flat scales having fringed edges, and small stellate hairs; sporangia large, almost spherical, 2-5 in a sorus .... *Gleichenia*
    2. Branches of the frond bipinnatifid (each similar in form to a whole frond of *Thelypteris palustris*);
        3. Main branches of the frond never bifurcate; leaflet-lobes commonly 10-15 x 3-4mm, with main vein and forked lateral veins .... subgenus *Diplopterygium*
        3. Main branches of larger fronds often irregularly bifurcate with some permanently dormant apices; leaflet-lobes 2 x 1mm with simple veins .... subgenus *Gleichenia*
    2. Branches of the frond forming a precise series of forks with a permanently dormant apex in each fork .... subgenus *Mertensia*
1. Young parts of the plant covered with hairs which are branched at their base and sometimes above the base, scales lacking; sporangia smaller, distinctly stalked, 8-15 or more in a sorus .... *Dicranopteris*

Gleichenia subg. *Diplopterygium.* There are about 20 species, most of them on mountains in the Malayan region, with a few in mainland Asia and Japan. A young plant of the Japanese species *G. glauca* is now in cultivation at Kew. The Malayan species sometimes form very large and dense thickets.

The lateral branches of these ferns are very like the pinnae of a tree-fern; they are never forked. If the *Gleichenia* frond-apex did not remain dormant temporarily while each pair of branches develops, each pair could not attain the same size as the preceding one (the food-supply would have to be shared with the continued apical growth) and the frond would ultimately have the same shape as a tree-fern frond. The controlling factor in this, as in all other members of the family, is the *temporary* dormancy of the frond-apex.
The species of this subgenus are thus more like ordinary ferns than any other members of the family. for which reason *Diplopterygium* is regarded as a basic group from which the rest of the family could be derived.

Gleichenia subg. *Gleichenia.* There are about 10 species, in South Africa, on mountains in the Malayan region and in Australasia. No plants are in cultivation at Kew.

The early fronds of a plant of this subgenus are like a miniature version of subg. *Diplopterygium*, but branches of later and larger fronds develop various different ways of forked branching, apparently in a rather irregular manner. The details of this on individual plants have never been fully observed.

Gleichenia subg. *Mertensia.* This includes many species, growing in all parts of the tropics, but few plants of large size. Each frond-branch develops by a series of forkings, with a *permanently* dormant apex in each fork. In each species the pattern so formed is distinctive, due to variations (a) in the lengths of each growth between one fork and the next (all may be equal or the later ones longer) and (b) in a development of alternate inequality at successive forks. In all cases the whole pattern of development of a pair of branches is completed before the main axis of the frond resumes growth. Three species from New Guinea have made good growth at Kew.

Dicranopteris. Plants of this genus are the principal thicket-forming ferns in the lowlands of the Malayan region, with some mountain species also. Most of them are usually ranked as varieties of *D. linearis.* Plants of two distinct varieties are grown in the tropical fern house at Kew. These varieties differ in their branch-patterns and in the characters and distribution of hairs. The branch-patterns all involve a series of forks and thus show some resemblance to *Gleichenia* subg. *Mertensia,* but there are two differences. In *Dicranopteris* only the ultimate branchlets are leafy, and there are a pair of deflexed short accessory branches just above every fork. In *Gleichenia* subg. *Mertensia* several axes of the branch system are leafy (not only the terminal ones) and deflexed accessory branches are lacking.

The branch-pattern in each species or variety of *Gleichenia* subg. *Mertensia* and in *Dicranopteris* is very precise, and depends on the presence of a permanently dormant apex in each fork; growth is continued by development of a branch on each side of the dormant apex. This growth-habit involves a complex system of controls which has never been investigated experimentally. The behaviour of plants brought into cultivation at Kew appears to indicate that if one of the ultimate branchlets of a frond is damaged, the dormant apex at its base may sometimes develop new growth and thus alter the pattern. Dormancy might also be broken by application of kinetin or some other growth-promoting substance. There is scope for some interesting experiment by both methods.

Cultivation

Many rhizomatous ferns are easily propagated by cutting a branch off the rhizome with a growing apex. But such cuttings from plants of this family do not survive. The only way to secure a plant for cultivation from the wild state is to find a very young one which can be dug up as a whole with its roots intact; the plants at Kew were all brought in this way. Mr Barrie Castell, propagator in charge of the fern-units, plant-raising and stock-houses at Kew, has found that it is possible to propagate this group vegetatively in two ways. The method giving the greatest degree of success is to peg down the rhizome of an old plant by a process similar to that of layering a branch of a tree. The rhizomatous growth is secured to the compost surface in a container placed alongside the plant to be propagated and left until it has formed a good new root system of its own. Once this has been achieved its connection with the parent plant may be severed, but if the cut is made too soon the severed part will die even though it appears to have enough roots. The second method adopted entails the removal of a section of rhizome and substrate from a mature specimen somewhat in the fashion of cutting a slice of cake, and potting the removed segment separately. The prime consideration with this latter method is to select a section having active rhizome growth with one or more young fronds expanding. The cut section of substrate into which the rhizome is rooting needs to be of generous proportions to the rhizome growing on it.

Of the utmost importance when attempting to cultivate members of *Gleicheniaceae* is provision of the correct medium into which they can root. Fibrous bracken peat (the top 6 inches or so of roots and litter built up where *Pteridium aquilinum* flourishes on heathland) is the ideal substrate and, in fact, the only material in which these plants have been found to grow satisfactorily. Nothing extra is added by way of fertilisers or compost material, and indeed the plants will not tolerate applications of liquid plant foods which promote the growth of most other ferns. This was discovered some years ago by Mr H J Bruty at Kew.

Ultimately most plants in cultivation become very large and need to be replaced by others propagated from them. The old plants do not take kindly to pruning. In their native environment they grow continuously throughout the year; temperatures in the equatorial tropics are about the same every day. Gleichenia plants flourish in the summer at Kew but the winter months have resulted in some losses, perhaps from the combined effects of poor light and occasional low temperatures. In common with the majority of ferns in cultivation it is essential that the correct watering regime is adopted. Although gleichenias are rhizomatous by nature the rhizome is not developed as a water storage structure and the plants are very vulnerable to irregular watering. We have incurred losses through the plants suffering stress due to excessive moisture loss; indeed once these plants reach a flaccid condition the chances of recovery are slim.

The following table sets out analytical results from laboratory tests on three substrate samples. Column 1 gives results from a bracken peat sample used for growing gleichenias. Column 2 gives figures for a soil sample in which *Gleichenia milnei* and *Dicranopteris linearis* var. *montana* were rooting at the time of their collection in New Guinea as young plants for cultivation at Kew. Column 3 gives results for a sample of general potting compost in use during the period in which these tests were carried out.

			(1)	(2)	(3)
	pH		4.1	5.6	5.0
available	P	ppm	21	0	116
"	K	"	360	76	359
"	Mg	"	90	900	290
nitrate nitrogen		"	20	8	94
extractable copper		"	6.0	2.3	1.5
exchangeable manganese		"	9.2	28	12.8

The pH values for all three are fairly low and it is interesting to note the levels of nitrate nitrogen and phosphorus are very much higher in the general potting mix than in the bracken peat or New Guinea soil sample. In Malaya these plants flourish on soils which are known to be deficient in phosphates. In Java, where the soils are mostly of volcanic origin, plants of *Gleicheniaceae* are much less abundant and do not develop in quantity on newly exposed earth as they do in Malaya.

The above soil analyses were carried out by Mr R R Charlesworth, soil chemist of the M.A.F.F. Agricultural Development and Advisory Service, at the South-east Regional Sub-centre, Wye, Ashford, Kent; we express our grateful thanks to him for this service and for the interest he has taken in the subject. We thank also Mrs Joanna Lowe for preparing the diagram showing types of branching in the family.

A PTERIDOLOGIST IN SCANDINAVIA

C R Fraser-Jenkins
Radley College, Abingdon, Oxon.

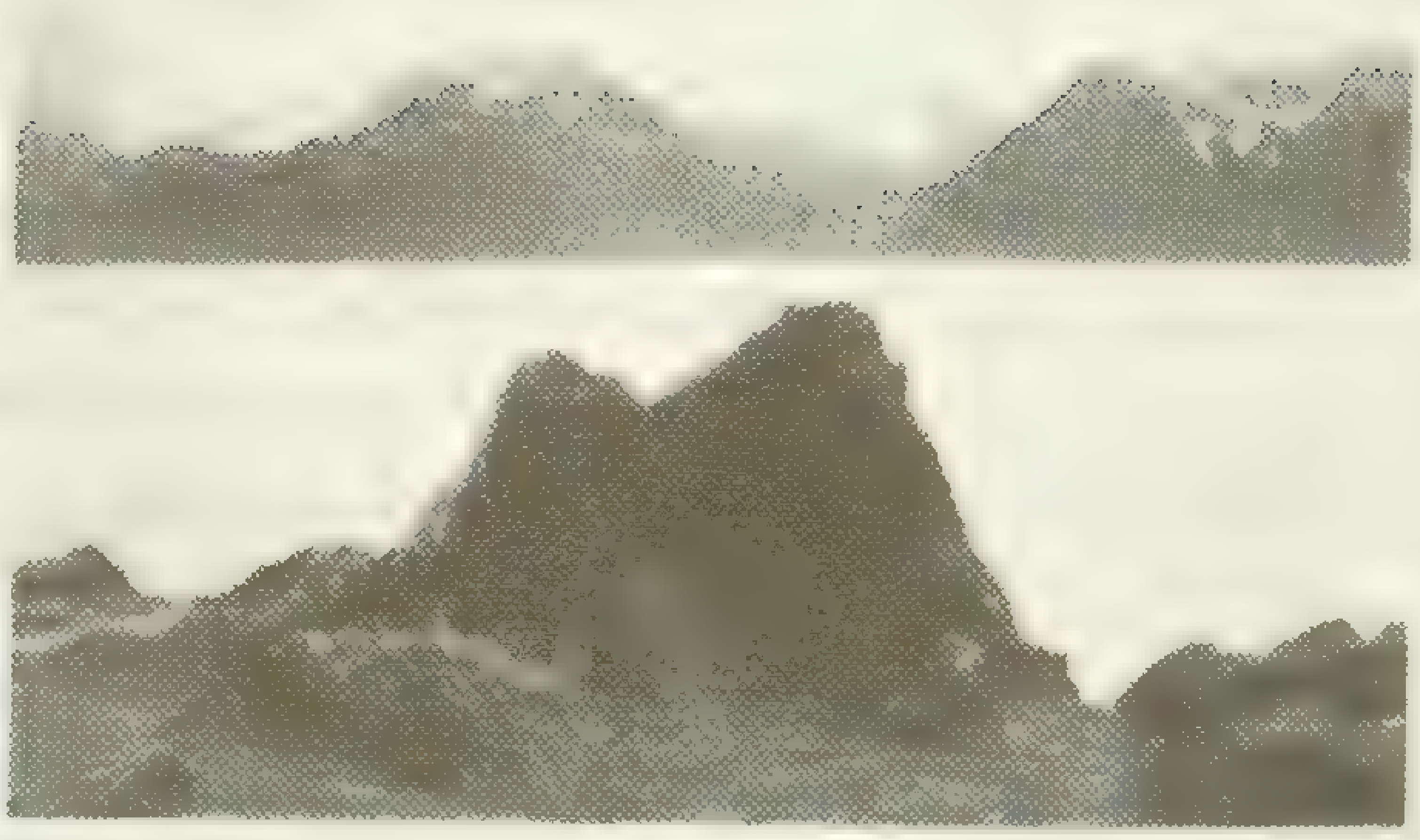
As a schoolmaster with a passionate interest in ferns, I am in the very fortunate position of being able to spend most of my holidays travelling the length and breadth of Europe and Western Asia in search of those eye-gladdening delights. My main stamping ground has long been the lush wet forests of North-Eastern Turkey and the Caucasus – where exciting finds such as *Dryopteris caucasica* arch gracefully up from the deep moss-beds of every ferny glade; however, in all this travelling I had only made two short visits to the northernmost parts of Europe, so in the summer of 1975 having returned early from Turkey, I decided to make a visit to the north of Finland and Norway in order to see a few of the special arctic and boreal species that grow there. In particular I had never seen three rare and interesting species, namely *Woodsia glabella, Diplazium sibiricum* and, most exciting of all for me, *Dryopteris fragrans* which is restricted to a very few clumps in one small valley in the most arctic part of Northern Finland.

On the evening of August 21st I set off by car across the channel on the night ferry to Oostende, and by hard driving was able to camp just outside Stockholm the next night. The following morning on my first day of collecting I was thrilled to find many superb plants of the hybrid *Dryopteris X uliginosa* (= *D cristata x carthusiana*). It was growing with its two parents in a boggy and mosquito-ridden Alder wood near Nortalje along with *Thelypteris palustris* and it was a very pleasing moment when I stumbled across it. Pressing fronds later on plastered with mosquito bites was only a trifle less so!

Proceeding across the Gulf of Bothnia to Finland I took the opportunity to visit Helsinki Herbarium, and I was fortunate enough to meet Mr J Sarvela who discovered the only plant ever known of the hybrid *Dryopteris assimilis x carthusiana,* and he very kindly took me to see it in its natural habitat in Espoo province near Helsinki. The plant was growing with large quantities of both parents in the complete absence of *D. austriaca* in a boggy and mossy place under pine trees, and had three crowns. It certainly looked intermediate between its parents but I was most impressed by the good eye for ferns that Mr Sarvela has, as so many fronds of either species look somewhat intermediate – yet only these three crowns are the real hybrid, which is triploid and has abortive spores.

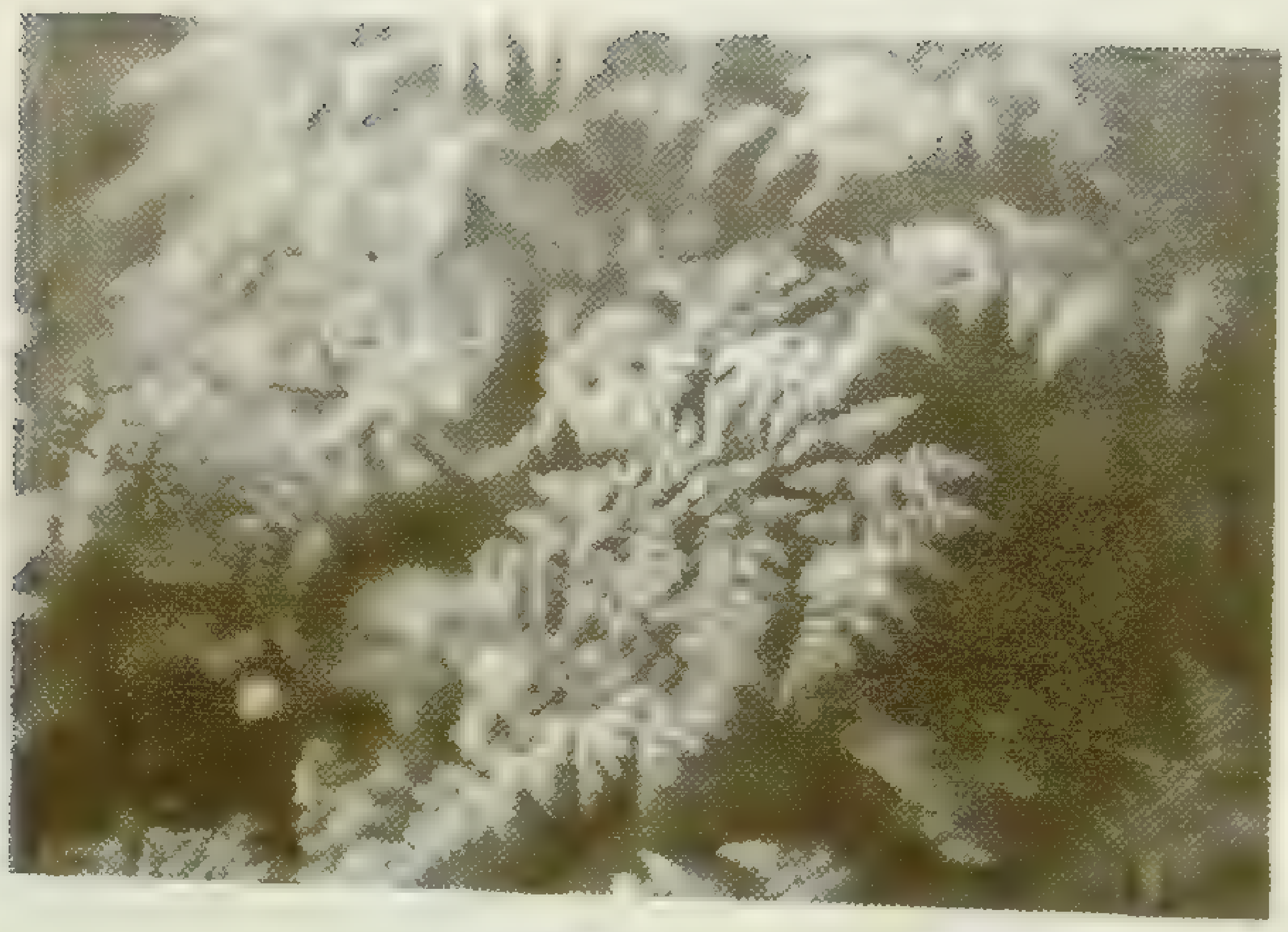
From Helsinki I made my way slowly northward via Lahti and Kuopio through the rainstorms and endless pine forests and lakes of Central Finland, finding many fine stands of interesting species such as *Lycopodium annotinum; L. clavatum; Diphasiastrum complanatum* – a species which with *D. issleri* is not found in Britain though it is superficially similar to the wide branched *D. alpinum* var. *decipiens* sometimes found here; *Equisetum hyemale; E. sylvaticum; E. pratense; Phegopteris connectilis; Gymnocarpium dryopteris; Dryopteris assimilis; D. carthusiana* and *Polypodium vulgare.* I continued northwards towards Ivalo near the Russian border, passing through a landscape where the conifers gradually became shorter as birch trees increased in number and where reindeer were often to be seen crossing the rough roads. I was exhilarated and fascinated by the long sunsets seen across the multitude of small tree-lined lakes, and the bird life too was exciting with Siberian jays coming in small groups to feed on cheese I threw to them, by the car and even sitting on the bonnet!

Dryopteris fragrans – Kevojoki, Utsjoki, N. Finland.



Lyngen Peninsula across the Lyngen-Fjord, N. Norway

Woodsia glabella, Sagelvdalen, N. Norway.



Cystopteris montana, N.W. Norway.

Diplazium sibiricum, Gudbrandsdalen, Ringebu, Norway.

My main goal was to visit the colony of *Dryopteris fragrans* in the Kevojoki valley near Utsjoki, and on August 28th after a longish walk around the Kevojarvi Lake I found myself at the bottom of the valley with high hopes and face set to the west. It was not long before I came across a likely looking scree and saw above me what I first thought was a *Woodsia,* but indeed it was none other than that little gem – the hoped for *Dryopteris fragrans !* There were just two clumps surviving there; the tufts of plants were a delight to the eye, a gorgeous rich green colour with contrasting russet scales clothing the stipes and very small stiff upright fronds, no more than 5½ inches high and with glands on the axes glistening in the sun – the whole plant smelling sweetly and strongly of lemons. I do hope people will not be tempted to damage this population which must surely be in a precarious state. Photographing it is so much better than collecting plants, which are anyway extremely difficult to grow, and it is so unnecessary to place whole plants of it on herbarium sheets as has been done in the past.

The next day it was a great contrast to come to the mountains and fjords of the north coast of Norway at the Tanafjord. Immediately there was a multitude of species which are able to live near the coast due to the warm Gulf-stream, but which are more or less absent from the northern part of Finland – *Dryopteris assimilis, D. carthusiana* and *Matteuccia struthiopteris* soon appeared along with some mountain species such as *Athyrium distentifolium* and the delightful *Cystopteris montana,* whose feathery leaves enhance roadside and woodland banks all over north-west Norway. Travelling westwards along the winding and sometimes rather rough Arctic Highway one soon reaches the very impressive Lyngen peninsula with snowcaps and blue glaciers hanging down the flanks of the mountains towards the sea and making a most remarkable sight across the waters of Lyngen. Near there is Sagelvdalen where there are two steep waterfalls above the lake of Sagelvvatnet on highly calcareous rock. There are some interesting species by the upper waterfall such as *Gymnocarpium robertianum*, the wisp-like *Equisetum scirpoides* and another most interesting fern, the tiny *Woodsia glabella.* This last was growing among *Polystichum lonchitis* clumps and is a very small narrow fronded *Woodsia* looking most like *Asplenium viride* which grows with it. It is only when one looks closely that the more dissect pinnae enable one to distinguish it. It is worth mentioning here that two other species of *Woodsia, W. ilvensis* and *W. alpina* are common in Norway, particularly the former which can be seen on nearly every silicaceous rock cliff and is sometimes very luxuriant with fronds up to eight inches long. A contrast to its rarity in Britain ! (Rickard 1972). One fern I did not see which might have been expected was *D. oreades* but having investigated all the published reports from Scandinavia and Iceland (Love and Love 1961; Sahlin 1962; Lye 1969 and Jalas and Suominen 1972), I can now definitely state that it has not been found in the northern areas so far.

Regretfully I soon had to leave the far north and on my way down I was rather pleased to find *Dryopteris austriaca* north of Grong, a good deal further north than any records in the *Atlas Florae Europaeae*. Apart from many random stops and visits on the way, my next main port of call was the little town of Ringebu near Peer Gynt's stamping ground in the Gudbrandsdalen which leads to Oslo as it is here that *Diplazium sibiricum* grows on a hill-side across the river from the town. It is a fairly common species in eastern Finland and north west Russia but is only known from two nearby localities in Norway, and having not seen it in Finland I was particularly keen to see it at Ringebu. It turned out to be quite difficult to find, but eventually I spotted it in a narrow, shaded gully near the edge of the forest, the sort of habitat where *Diplazium caudatum* lives in the western Canary Isles. The plant itself consists of a thin branching underground rhizome creeping through the soil and giving rise at intervals to the large triangular fronds with remarkable shiny black scales on the long stipe. It is really most unlike any other European fern.

From Ringebu I went post-haste back to Stockholm to visit the herbarium in the Naturhistoriska Riksmuseet which is a most important place with some very interesting collections from central Asia and a good fern collection. I was also very privileged to meet Professor Hulten, at present working on a major new treatise on the distribution of circumglobal plants of the northern hemisphere. He had some fascinating stories of being shipwrecked in southern Kamchatka during the Russian revolution with a party of Bolsheviks and of his subsequent travels in the area for several years in the 1920's. I was also most interested that he knew the great Russian pteridologist Aleksandr Fomin very well, as the more I have come across Fomin's work the more outstanding I realise he was, and it was pleasing to hear what a nice personality he was too.

In the herbarium I came across one specimen of a most unusual hybrid of *Dryopteris austriaca x filix-mas* or *D. assimilis x filix-mas*, but most likely the former. The specimen came from Hogkullen, a hill on the south side of Lake Vanern in southern Sweden, and is quite unique, being utterly distinct from the fairly common species *Dryopteris remota* of south central Europe, which I have seen in the field and in many herbaria. *D. remota* has often been recorded under the names of hybrids, such as *D. carthusiana x filix-mas, D. carthusiana x pseudomas, D. austriaca x filix-mas* or *D. austriaca x pseudomas.* However these all refer either to *D. remota*, or in one case to genuine *D. carthusiana x filix-mas*, and I had never before seen a genuine specimen of *D. austriaca x filix-mas.* Unfortunately on making a fairly careful search of Hogkullen I was unable to find the plant from which the specimen had been collected by J A O Skarman in 1929, but it was pleasing to have found the herbarium specimen all the same.

My last excursion before returning to England was to see *Asplenium adulterinum* growing on the Serpentine at Taberg near Jonkoping: I had not seen this curious little fern in Scandinavia before though in 1974 I found a good deal of another Serpentine fern *Asplenium adiantum-nigrum* ssp. *cuneifolium* at Halhjem near Osoyra, south of Bergen in western Norway. Finally on my return towards England I was very pleased to be able to see the herbarium at Bruxelles, helped by Professor Lawalrée whose interest in ferns led him to purchase some years ago the very important herbarium of Monsieur J Callé. I am very grateful to Professor Lawalrée for his help in finding interesting and important specimens during my visit.

From Bruxelles it is less than a day's drive back to Radley, to which I returned on September 8th, just in time for the beginning of term, having had a thoroughly enjoyable and fernful holiday.

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FERN FRONDS FOR INDOOR DECORATION

J W Dyce

I always take a large selection of fronds from my garden for decorating the Society's Stand in the Specialist Societies' Tent at Southport Flower Show. It is always interesting to see how the different species stand up to the hot stuffy conditions in the tent and this year it occurred to me that a few notes about them might be of some help to members who are interested in flower arranging, and would like to introduce the green tracery of fronds as a foil to the colour of flowers. It is unfortunate that the species and their varieties most desirable for the purpose seem to be the least lasting and quickly droop in the confined heavy atmosphere of the tent but in cool fresh conditions no doubt they would stand up better. However, many flower arrangements will have to survive in adverse conditions and those of our tent certainly test the lasting properties of fronds to the utmost and show very definitely which are most suited for the purpose and those to avoid using. My comments are applicable only to hardy ferns from the garden as I have no experience with fronds culled from indoor and greenhouse ferns.

It is obvious that the harder strong-growing ferns such as the polystichums and male ferns will last well, and all the polystichum varieties, even the more divided 'Divisilobum' ones, were still quite firm and fresh at the end of the three day Show. The dryopteris species, *D. filix-mas, D. pseudomas, D. austriaca, D. carthusiana, D. aemula* and varieties stood up equally well, as did *Blechnum spicant* and the hardy foreign *B. chilense.* The polypodies too kept their freshness, but a species which I thought would have lasted well – but did not – was scolopendrium. Some forms, particularly 'Crispum' and the tougher ramose varieties did keep quite fresh but the cristate forms quickly began to droop.

When I first took fronds to Southport I included a lot of oak and beech fern which I thought would enhance the vases with their beauty, but alas! they very quickly wilted during the first day and proved to be quite unsuitable. Even the tough *Adiantum venustum* finds the going hard and does not look too good at the end of the Show. I always take a lot of lady fern fronds even though I know that most of them will wilt badly and be almost unrecognisable before the Show is over. There are some good lady fern varieties which are pretty firm and they come through not too badly but the finely divided plumose ones go limp in a matter of hours and are quite finished at the end of the first day. These are only a few personal observations about the behaviour of fronds of the more common ferns under extremely adverse conditions, but under good ones it is probable that even the worst doers will prove to be longer lasting. However, the punishing conditions in our Southport tent certainly show up survival qualities and these notes on my findings may prove of some use to flower arrangers.

SURVEY OF THE FERNS ALONG THE BIRMINGHAM CANALS

A R Busby

In response to my son's many requests I found myself, one grey Saturday afternoon, walking along a canal towpath showing him the colourful narrow-boats in Birmingham's Gas Street Basin. From Gas Street we were walking along the canal in a northerly direction to Farmers Bridge Junction when rain which had been threatening all day drove us hurriedly to shelter beneath an old bridge. Glancing casually at the brickwork I found myself staring at a rather stunted hartstongue fern, *Asplenium scolopendrium*. This was a surprising find as, apart from cultivated plants in local parks and gardens, there are no records for the fern in the Birmingham area. This aroused my curiosity about the flora of the City's canals and I decided to make a systematic search for ferns growing along them.

In an industrial city the canals and railways provide habitats which do not suffer from frequent redevelopment and change, and although the canals are becoming more and more popular for leisure activities it is only a tiny proportion of the population which bothers to explore them. Consequently, the flora of industrial canal-sides has had some 150 years to develop. (The Birmingham Canals were built between 1770 and 1830.)

The Ordnance Survey Map (2½ inches to the mile) shows that there are some 25 miles of canals in Birmingham and its environs and in the late summer of 1972 many of my lunch breaks and most of my weekends were spent on my survey, accompanied by a colleague who has a passing interest in ferns. Our first excursions took us along the Birmingham-Wolverhampton Canal where, not surprisingly, the common fern encountered was bracken, *Pteridium aquilinum.* It made long green ribbons against the walls of factories and warehouses, occasionally finding a home in the cinders of the towpath or in the crevices of the walls. Amongst the bracken was the occasional male fern, *Dryopteris filix-mas*, and one or two good specimens of the scaly male fern,*D. pseudomas.* During our first walks a large percentage of these ferns found were immature and sterile, and so were not reliable for positive identification other than placing them in the "Dryopteris Group". By the late autumn we had covered the 4-5 miles of the Wolverhampton Canal as far as Smethwick. This part of the Navigation is a complicated ribbon of water with Brindley's original canal taking a very tortuous route past the factories of Hockley, Soho, Handsworth and Smethwick. About 1800 a new one, wider and straighter, was built by Telford and the two canals at different levels are separated by a wide embankment. They pass within a quarter mile of my home and in the spring of 1973 I began work on this local section in the evenings. It was on one of these walks that I found the first lady fern of the survey, *Athyrium filix-femina*, growing on the brickwork of Telford's Aqueduct. This beautiful little bridge with its fussy cast-iron work strides across the Lower Birmingham Level carrying the "Engine Branch" to the higher Wolverhampton Level. The lady fern was rather stunted but carried fertile fronds. In company with the inevitable bracken and male fern colonies it added to the charm of the old bridge.

On another visit I explored, about three quarters of a mile north of the Aqueduct, a very steep embankment topped with a very fine stand of beech trees and found more colonies of male fern and bracken. Near here is another of Brindley's bridge masterpieces called Galton Bridge and the beech trees on top of the embankment marked the place where Galton House once stood. Demolished around 1916 the site is now occupied by vehicle dismantlers, but in the shade of the trees amongst the debris of modern motoring, fine specimens of the broad buckler fern, *D. austriaca,* grow, together with male and lady ferns. I have searched the area where the garden would have been but, apart from the occasional fruit tree and rose bush, no garden plants were found and there was no evidence of cultivated ferns. On the way home, a few yards from Smethwick Top Lock, I stopped to look at a few stunted dryopteris species growing in the mortar of a low retaining wall and amongst the tangle of fronds was a solitary plant of the hard shield fern, *Polystichum aculeatum.* During 1973 we concentrated on this north side and the City centre, noting the ferns, collecting the occasional frond for pressing and keeping a black-and-white photographic record.

We next turned our attention to the Fazeley Canal from Farmers Bridge Junction through Aston and Saltley to Salford Bridge and the Gravelly Hill Motorway Interchange. The ferns here were rather sparse in a drab environment of rusty corrugated iron walls and the soot and grime in thick layers covering the brick and woodwork of industrial Birmingham, yet even this dismal place could provide a surprise. Stopping to examine the brickwork of the railway bridge which supports Aston station we discovered another "first" for our list – a tiny plant of the maidenhair spleenwort, *A. trichomanes,* rooted precariously in the crumbling mortar. We hunted around the forest of concrete pillars supporting the motorway but the recent upheaval of construction work had obliterated all the original flora. On the way back to Aston along the Bordesley Canal to the Digbeth branch we noted the usual male and broad buckler ferns and found another fine specimen of the scaly male fern close to the local power station. From the Digbeth branch near Aston begins the Grand Union Canal but in the two miles or so of this branch's length only male and broad buckler ferns were in evidence.

In 1974 we started work on the southern side of the City. What a contrast this was to the tree-less waste of industry existing on the north side! Just a short walk from Gas Street Basin is the quiet tree-lined Worcester Canal passing on its way through Edgbaston. Unfortunately, at this point it has only one towpath which necessitated the use of a small boat to enable us to investigate the wooded bank opposite. Again only the three usual ferns, the male, broad buckler and lady, were present. We were interested in the possibility of finding fern variants amongst the plants still growing in the extensive abandoned gardens along the canal banks but our searches revealed nothing but the lady fern species which must have been very popular and was still there in large colonies amongst the invading bramble and bracken. Along the sides of the canal through Edgbaston to Birmingham University it was also very much in evidence, no doubt progeny of the garden colonies. The happy find of a second maidenhair spleenwort was made on the Church Road bridge, and on the bridge which carries the approach road to the University from Vincents Drive was our second hartstongue fern. This was particularly pleasing as the first plant found near Broad Street in 1972 had disappeared. The canal wends its way through Selly Oak and Bourneville but here ferns were few.

The area chosen for the survey ended at Lifford some 300 yards north of the junction of the Stratford-on-Avon and the Worcester-Birmingham Canals but a walk down to the junction and a search on a small adjacent bridge revealed the presence of several colonies of wall rue, *A. ruta-muraria,* thriving in the mortar.

Of the allies, only the common horsetail *Equisetum arvense* was evident throughout the area and it formed enormous tangled colonies along the canal sides. Where it grows in the dry ash-like substrate it produces an abundance of fertile shoots in April but in the richer grassy areas it appears to produce vegetative growth only.

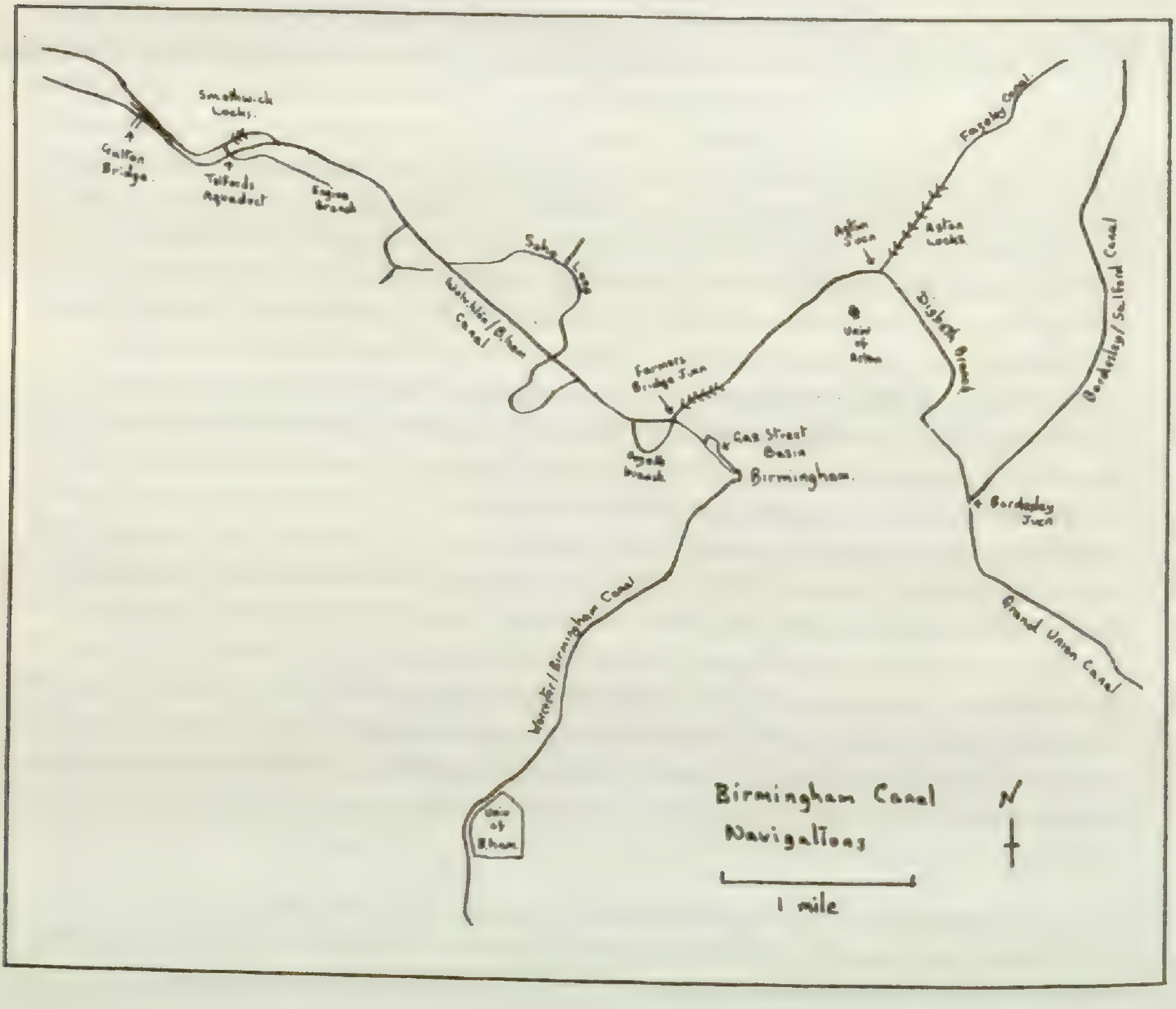
I am now devoting my attention to the Stratford-on-Avon and the Shropshire Union Canals and I am sure they will provide many happy hours of fern-hunting.

National Grid references

Asplenium scolopendrium	–	42/044836, 059868.
A. trichomanes	–	42/059856, 089895.
Athyrium filix-femina	–	42/024889, 051845, 059855.
Dryopteris pseudomas	–	42/027891, 053871, 097893.
Polystichum aculeatum	–	42/025889.

Remaining species common to the area –

Dryopteris austriaca, D. filix-mas, Equisetum arvense, Pteridium aquilinum.


Smethwick Locks.
Galton Bridge.
Telfords Aqueduct
Engine Branch
Soho Loop
Wolv'hton/B'ham Canal
Farmers Bridge Junc
Oozells Branch
Gas Street Basin
Birmingham.
Aston Junc
Aston Locks
Fazeley Canal
Univ of Aston
Digbeth Branch
Bordesley/Salford Canal
Bordesley Junc
Grand Union Canal
Worcester/Birmingham Canal
Univ of B'ham
Birmingham Canal Navigations
N
1 mile

A NEW FERN FOR EUROPE

J W Dyce

In the first week of May this year I accompanied Mary Gibby and Clive Jermy, both from the British Museum (Natural History), to Portugal to search for a new fern species. The fern, looking rather like and until recently regarded as one of the forms of *Dryopteris austriaca,*occurs in the Canary Islands. During a visit to the Islands in 1968 by Professor T. Reichstein of Basel in Switzerland and Dr G Benl of München in Germany, they noted that the fern seemed different and specimens were collected. Dr Benl's plants were sent to Clive at the Museum and he and Mary recognised it as a new species as a result of cytological investigation and studies on spore morphology; they named the fern *Dryopteris guanchica.* Later, Mary who is working on the dryopteris complexes, visited the Canaries to study the fern and collect herbarium material. More recently, in a collection of dryopteris herbarium sheets received on loan from the Botanical Institute at Coimbra, Portugal was a specimen which Mary recognised as the new Canaries fern; it had been collected in the Serra da Sintra to the north of Lisbon in 1839, and the question was, did it still grow there — if so, it was a new species for Europe, and our small expedition was planned to go in search of it.

A very comfortable self-contained holiday flat was obtained for a week in Ereceira on the coast about 40 kilometres north of Lisbon, and the small and very beautiful town of Sintra clings to the steep slopes of a very hilly area,which includes the Serra da Sintra and other hills up to 1500 feet high and all densely wooded, lying to the south about halfway between us and the capital city. We hired a small car so we were free to come and go as we pleased and we crammed a lot into that week, exploring for ferns during the days and sampling the gastronomic delights of Portugal in the evenings !

The Sintra hills were our Mecca and we were there as soon as possible on our first day. In Sintra we were met by Dr Maria Ireneia Melo, a plant pathologist at Lisbon University, and joined her and two companions in their car which took us up some extremely narrow and very steep zigzagging roads to the high ground above the town near the National Palace of Pena, a vast building which tops the highest peak, rising from the summit rather like the fairytale castles of old. Its extensive grounds slope down the hill on all sides and are criss-crossed with a network of roads and paths like a veritable maze in which it is the easiest thing to lose one's sense of direction and become completely lost — which is what we did on our second day! we each had different ideas about the way to return to our car which had been left at one of the entrances to the grounds. In the end we emerged by another gate some long distance round the hill from the car, but we blessed this confusion which led us to a magnificent large fern garden in a secluded narrow valley with a stream running down it. Tree ferns, *Dicksonia antarctica* and one of the cyatheas, were a strong feature but the large number of fern beds were filled with practically one fern only, a species of blechnum. However, it was here we found our first *D. austriaca* which seems to be very rare in the area and had till now completely eluded us; we read this as a good omen, for after two days of vain searching we were beginning to feel somewhat despondent. After all, it was nearly 140 years since the herbarium specimen had been collected from the area and it was very probable that our fern no longer existed.

Up to now we had been devoting our search to the surroundings of the Palace and other ferns were here in plenty. One of the most common was *Davallia canariensis* growing on the ground, over rocks and on the trees some of which were festooned with the fern up to 40 feet above the ground. Other very common ferns were *Polypodium australe* and *Asplenium onopteris* and wherever we went during the week we found them in quantity; the latter was particularly handsome, growing tall and upright in large clumps. We also noted *A. adiantum-nigrum, A. billotii, A. ceterach, A. scolopendrium* and *A. trichomanes,* as well as *Athyrium filix-femina, Cystopteris fragilis, D. pseudomas* and *Polystichum setiferum,* all good British species, and it was delightful to see in addition *Adiantum capillus-veneris* on the stonework of water-channels in the woods and *Anogramma leptophylla* growing on damp stone walls by the side of one of the roads. We also noted *Selaginella kraussiana* and a few plants of *A. hemionitis* while in some places *Woodwardia radicans* was growing profusely.

On the third day we moved on to the slopes of the Serra da Sintra proper which run alongside the Palace grounds. The terrain was more difficult, densely wooded with areas of large rocks but some narrow walks wound their way through the jungle, sometimes climbing steeply at others dropping down, with numerous branches running in all directions. The ferns were the same as on the previous days and eventually we stumbled on a few plants of *D. austriaca* once again. This raised our hopes for if this fern was here the habitat was right for *D. guanchica* and it was possible it could be here, particularly as this, the Serra da Sintra, was the locality mentioned on the herbarium sheet. Scrambling up a steep slope we forced our way into thick undergrowth at the base of huge house-high boulders, and to Clive fell the honour of discovering the object of our search. He was a little way distant hidden among bushes when he quietly called "Mary", but in a tone which sent us both scrambling towards him, and there it was, the first find of *D. guanchica* to be made in Europe, four full-grown plants in a spot where the overhanging trees and bushes had divided slightly to give some light to the plants below. Nearby, round the corner of a large rock was another plant, the largest of them. Last year's fronds were still fresh and green and this year's ones were fully grown but lighter in colour. The fern is superficially like *D. austriaca* but not so coarse and heavy looking, and all the final segments are more pointed. Two more specimens were found in a deep crevice among the rocks and further hunting in the area near the paths discovered many more, so it would seem obvious to assume that the fern grows here in good numbers. In a slight hollow were two plants growing along with *D. austriaca* so we were able to compare the two species and obtain interesting photographic records of them.

For our remaining three days we ranged further afield, one day in the woods eastwards of Sintra to find out if *D. guanchica* was there but we did not find it; on another day we travelled north to the limestone hills of the Serra de Montejunto where the spring flowers were in full bloom and claimed all our attention. A dwarf white cistus was carpeting the high ground, with abundant *Narcissus bulbocodium*, the hoop-petticoat daffodil, scattered through it; there were several orchids, some familiar, others not, and on the slopes were dotted large plants of a lovely large-flowered peony, *Paeonia broteroi*. Our last day was spent on the coastal sand-dunes near Ereceira – again we were tramping over a gaily coloured carpet composed of a magnificent array of blossoms in all colours, a gardener's – and a botanist's – paradise.

LECA AS A SOIL IMPROVER

Erik Aarestrup, Denmark

Leca, an acronym from the initial letters of Light Expanded Clay Aggregate, appears as granules of various shapes and sizes, made of an inner clinkerized cellular structure and an outside hard and resisting coating. Leca is especially produced for insulating purposes in buildings but I have now made a lot of experiments with it in the garden and have had many good results with it.

It is sold in three sizes, Leca gravel 0-3 mm, Leca peas 3-10 mm, and Leca nuts 10-20 mm. I have used crushed granite in many soil mixtures for ferns, rhododendrons and other plants with satisfactory results but granite is very heavy and expensive, so I have looked for other answers. When two years ago I visited the Botanical Gardens in Aarhus and discussed soil mixtures with Mr Dixen, the Director, he suddenly said – "Why not use Leca instead of crushed granite? It is light, very easy to handle, very cheap and chemically inert".

When I returned home I bought some bags of Leca peas and covered the surface in some of my frames containing ferns with a layer of ½-1 inch of Leca peas. What happened? The Leca kept the humidity in the soil (the earth-worms could work instantly) but allowed passage of air and rain. The soil was very loose and the ferns thrived fantastically. Such different "guys" as *Cheilanthes marantae, Asplenosorus ebenoides* and others grew as if they were in their normal habitats in nature. Since then I have bought 30 bags of Leca in all three sizes. I covered the surface in all frames with Leca peas. It was all successful. I have covered the soil about roses, rhododendrons and ericas with Leca peas and nuts. It seems to be very useful. (There is a problem – the removal of weeds is more difficult, of course. You have to use your hands instead of tools.)

Leca peas mixed with soil gives a very good mixture, loose and healthy, for the plants. All soil mixtures used by the Botanical Institute in Aarhus now contain Leca. But there is a little problem with sterilisation – if you pour boiling water on pots with soil mixtures containing Leca, the Leca peas or gravel come up to the surface because they are so light. The smallest size, Leca gravel, is very fine for special soil mixtures. I have tried to cover the surface in pots, after sterilisation, with a thin layer of Leca gravel before sowing spores. Until now it has been very successful. By chance I discovered another advantage. If you want to sow tree seeds, then make a good surface of soil, put the seeds upon the earth and cover the whole with ½-1 inch of Leca peas. The small plants will rush up – no mould, no fungus. I have never got so many Betula plants as with this method.

MOULD IN SPORECULTURES

Erik Aarestrup, Denmark

I have had a lot of trouble with mould in my sporecultures and have tried many remedies with more or less success. The best remedies also kill the gametophytes. One day I got an idea. When my wife is conserving (jam, juice etc.) she always puts something in it to avoid mould. Its name is ATAMON. It is a chemical substance found in red whortleberry but I am sorry I don't know the English chemical name. I tried it in my pots – success! No damage, a fine protection against mould. Quite elementary, of course!

JNO. BEVIS – A CENTENARY

Peter G Corbin

1976 is the centenary of the finding in the wild by Jno. Bevis at Hawkchurch, then in Dorset, now in Devon, of that superlative *Polystichum* variant, *P. aculeatum 'Pulcherrimum Bevis'.* "Perhaps the greatest discovery of modern times" is Druery's (*British ferns and their varieties,* 1910, pl. 53, p. 368) quotation from the notes and descriptions made by Col. A. M. Jones of Clifton to accompany his collection of nature prints of fronds. Some fern lovers might question this: the decision of who really deserves the title of "Miss World" is always a very personal one for viewers. Others might feel that this supreme tribute should go to a variant of athyrium, polypodium, etc. There can, however, be no question of the beauty of 'Pulcherrimum Bevis'. "And there's my Bevis" is the remark of every host to his guests when conducting them round his garden at a week-end meeting of the Society, or perhaps if in Jimmy Dyce's or Reginald Kaye's garden, it would be "Here are my Bevises".

But who was Jno. Bevis? Druery is the only (?) reference in which he is in this way named. What Christian name does the abbreviation Jno. stand for? There are four other finders listed in Druery's plates with this same abbreviation in front of their surnames. This question, clearly not vital, is one which I feel sure the Society's records will immediately answer. [Dr F. W. Stansfield writing in 1897, refers to him as *John* Bevis – *ED.*]

There is another question. Is Bevis a variant of *aculeatum*? "Many and hot have been the discussions as to the species to which this variety belongs. Mr Wills ... stoutly maintains that it is *aculeatum*. ... Mr Wollaston confesses it is 'a puzzler' ... and suggests that it may be a natural hybrid. ... Mr Fox adds that it has the peculiar shade of green of *angulare*." These comments were written by Druery, following Col. Jones' notes. Discussion has long since cooled and it is now always referred to as *aculeatum.* It would, however, be interesting to know for certain if it is *aculeatum.* Could Leeds University or another fern research centre be persuaded to provide this definitive information as a chromosome count from a root tip squash preparation? It wouldn't take more than five minutes, would it?

Lastly, do we accord to Jno. Bevis the gratitude and respect that he deserves? The Society has no laurel-crowned bust or commemorative portrait of him. Might perhaps a search of the Hawkchurch parish register be made to see if Jno. Bevis was born and died there, if he married there, even if present day descendants of his are still there? It might just possibly lead to the finding of an old sepia tinted photograph. Nevertheless his name is immortalized, carved into the annals of pteridology; his fern unfailingly evokes admiration and pleasure.

Col. Jones, annotating his nature print of a Bevis frond, wrote "... had this plant fallen to the lot of the most aspiring hunter that ever bore a vasculum, he could scarcely have helped feeling at the moment of discovery that he had not lived quite in vain;". He paused for a moment and then continued writing " – but it was pulled out of the hedge in a ploughed field by a common labourer who knew nothing of ferns."

It would, a hundred years ago, have been unexceptionable to describe as a common labourer a man who possessed no skill or training, who was possibly not in regular employment, hedging and ditching perhaps only seasonally. And it is certain there was no intended disparagement of Jno. Bevis when Col. Jones wrote this. He was "the best type of an English gentleman" (Stansfield, 1909, Br. Fern Gz., Vol. I, p. 45). His feelings of admiration for this new variety were boundless and in striving fully to give due tribute to it, his pen raced away with him. There was such a world of difference between the gloriously stately and elegant beauty of this find and the undistinguished lot of its finder.

But Jno. Bevis had come to know the ferns of his road sides very well indeed while hedging and ditching: not by their tri- and quadri-nomials, not as Polystichums or Athyriums, perhaps not even as Hard Shields or Soft Shields or Bucklers. His sensibility of form and beauty distinguished them for him and his keen eye saw them and gave him pleasure as he cleared and trimmed along the verge. Immediately and instinctively he knew the uniqueness of this fern clump when he saw it. *His* bill-hook should never hack down something so graceful. Surely the gentleman he had seen from time to time slowly walking the lanes, looking intently at the plants in the banks, lifting a leaf or frond with his stick to see it more closely, and occasionally trowelling out a plant – surely he too would like it? Hadn't he said one day that he grew them in his garden and enjoyed their different patterning? The patterning of this one was different. If another roadman was clearing this bend of the lane next year, *his* hook would hack it out and it would be lost. And so "the whole find – a goodly clump of six or seven crowns – was handed over to Dr Wills" (Druery 1910).

Jno. Bevis knew ferns and lived not in vain.

SPORE AND PLANT EXCHANGE

Dick Cartwright has been working hard and has amassed a large selection of spores from many sources throughout the world; they are enumerated in the list sent out with this Bulletin. We thank all our members and friends who have given us their support and enabled us to present this list but we are sure there are other members who can help, so please do not leave it to the conscientious few who year after year ensure that we have a worth-while and full list of spores to present to you.

Only one member is utilising our "WANTS" service this year – John Phillips, 6 Calais Street, Myatts Field, London SE5, who requests –

> Any form, spores or plants would be welcome of
> *Polystichum aculeatum* "Pulcherrimum gracillimum"
> *Lygodium palmatum*
> *Woodwardia radicans*

NEW PROTECTED AREA IN BORROWDALE, CUMBRIA. Johnny's Wood at the south end of Borrowdale in the Lake District has been taken over by the National Trust as an area of special scientific interest. The credit for saving this area of woodland with its very interesting flora goes to Fred Jackson, one of our Vice-Presidents who lives in Borrowdale and has been fighting for some time to achieve this end. It has taken him about two years to save the Wood from the sheep; first he approached the Cumbria Naturalists Trust which was unable to do much, and the matter was passed on to the Nature Conservancy, and through them to the National Trust which has been able to take effective action. Many of us are well acquainted with Johnny's Wood and its abundant fern flora which includes some of the more unusual species as well as variations, and we congratulate Fred on the successful outcome of his fight.

DAMAGE VARIATION

J W Dyce

When wandering in ferny places one often notices fern fronds which are entirely different from the normal form for the species and the first thought is that a variety has been found. Such fronds are usually strong-growing and more coarse in texture than normal ones, they can be very foliose with large pinnules which are overlapping and are generally more divided. In some cases they are completely regular in their development which makes them appear very desirable acquisitions for the garden but the majority of them are rather ragged, depauperate and uneven in their growth which of course labels them straight away as undesirable.

Such plants appear in a variety of habitats and are possibly most common later in the year as secondary growth on roadside banks and verges and in hedgerows where the growth of plant life has to be kept in check to allow free passage for traffic. In such places the fronds are usually quite regular in their pattern, a lighter green in colour and much more foliose and even more divided than the type. On dry banks *Polystichum setiferum* and other species can appear as smallish growing plants with crisped pinnules and although it is possible that some such crispums may be genuine varieties they should all be treated with suspicion, and if collected the grower should be prepared for next year's fronds developing quite normally. An experienced fern hunter can in most cases decide on the spot whether or not such a plant is likely to retain its character in cultivation.

Where there is traffic through fern stands, footpaths made by man or animals, or cart-tracks, plants are liable to sustain crown damage by foot or wheel or may even be torn from the ground. This is particularly the case in Forestry Commission and other woods where timber has been felled and the undergrowth practically destroyed by tractor wheels and the dragging of tree trunks through it. In the cleared areas it is remarkable how quickly the ground plants recover, and such is the viability of large fern crowns lying on the surface or with only a few roots still functioning, that fronds are pushed up, even from badly damaged ones capable of producing only one or it may be two. Such fronds assume weird shapes at times. Frost damage killing off the larger part of a crown so that only one or two fronds are capable of growing causes similar results and often too it is seen on a steep bank where the soil has been washed away or there has been a landslide, leaving fern crowns clinging by only a few roots.

Such fern development is not permanent as can easily be proved by removing one of the casualties and establishing it in the garden. When pinnule crisping occurs on dry banks it is probably caused by the plant trying to reduce its surface area exposed to the light in an endeavour to slow down transpiration. The strong foliose growth of secondary fronds after the earlier ones have been removed can be explained by the plant in full energetic production suddenly losing the outlet for its energy and thrusting it all with concentrated force into the production of the few fronds still waiting to unfurl from the crown. The case of malformed growth by damaged plants is less easy to explain but the latent life force in large crowns must be great and has to have an outlet. It is very noticeable that such plants develop only one or at most two fronds so that all the life force is channelled into them giving the vigorous coarse growth. The damage to tissues of embryo fronds can possibly explain the distorted and depauperate specimens, and when there has been no tissue damage we get the much fuller foliose and divided development retaining a regular and balanced character which can completely mislead the unwary. Quite frequently I get such fronds sent to me for naming and my enquiries elicit the true facts. Sometimes the finders collect the plants and find out for themselves — the following year! Then they write to me for an explanation. The short answer is, suspect all varietal growth associated with plant damage or disturbed habitats.

There are other kinds of fern growth which cannot be mistaken for variation and these must be mentioned. Distortion can be caused by sucking insects attacking the soft growth of unfurling frond apices; this results in ingrowing congested clusters at the tops of the fronds, in a way rather like cresting, but these are so obviously not natural with their brown and dying centres, usually quite brittle, that they cannot be mistaken even for depauperate growth. Nibbling of the rising croziers by larger insects, such as caterpillars, or by animals, can cause distoriton of a more general nature, not just restricted to the frond apices. These days chemical sprays are used a lot to keep plant life in check along the sides of our roads and many of these distort growth but again in such an obvious way which is so unlike variation that no one should be deceived. Equally obvious should be the strong unnatural growth induced by over-feeding with strong manures.

ROUND THE SHOWS

J W Dyce

Solihull Flower Show — 17/19 April. A R (Matt) Busby reports on his Fern Exhibit — On the Stand were potted hardy ferns and a spore germination display, together with a selection of the Society publications and fern books. It attracted a good deal of notice and copies of our "pick-up" leaflet were handed to callers who showed an interest in ferns. A few of our members called at the Stand which gave some encouragement to Matt, particularly as they had some kind comments to make about his efforts. Thanks are due to the Solihull Horticultural Society for providing the space for the Exhibit.

Chelsea Flower Show — 25/28 May. The Fibrex Nurseries Ltd of Evesham had a very fine fern exhibit which earned them the award of a silver gilt medal. It consisted of a display of greenhouse ferns along the back, which included some magnificent specimens of Nephrolepis, and in front was a large collection of hardy ferns, chiefly British ones. The nursery is still in the process of building up a stock of show plants of the better fern varieties, so a good part of the exhibit consisted of the more attractive species, but that did not detract from its excellence.

I assisted at the Stand and was available for the duration of the Show to answer questions about the hardy fern varieties. A surprising amount of interest was shown and it was very obvious that ferns are coming back into favour once again. Their value for woodland gardens and along the banks of garden streams is being fully appreciated as was evidenced by the large number of enquiries and orders for ferns to adorn such places. Many people, too, made a point of complimenting us on bringing back ferns to the Show after a very long lapse of time — I don't think any trade fern exhibits have been shown since the last war — and remarked how pleasing and restful the different shades of green were, making an oasis amid the bright colouring of the flowering plants.

The Society's "pick-up" leaflet was available on the Stand and it was also reprinted in full in the Nursery's catalogue, a very generous action which is much appreciated. We have already benefited by an influx of new members and enquiries are still being received.

This first venture by Fibrex Nurseries in this field proved to be most satisfactory and worthwhile and they are going all out to ensure that their Stand next year will offer a much larger range of good fern varieties.

Following the success at Chelsea they also exhibited ferns at Southport this year and again had a very fine display. But Southport is very different from Chelsea which is a show for the dedicated gardener; Southport caters more for the general sight-seer and the holiday maker who, generally speaking, know very little about ferns and this was very much reflected in the interest shown and business done.

Harrogate Autumn Flower Show – 10/11 September. R Trippitt reports on a display of ferns he put up at this Show, which earned for him a silver medal. All his ferns which were on show at Southport, with the addition of a few others, were used for the exhibit, and knowing the high standard of these ferns I am certain it must have been a very magnificent display of some of the best of today's varieties. To make it a little more "gay", cyclamens and heathers and some autumn foliage were added and the general effect was most pleasing. The Society's "pick-up" leaflet was on the stand and all of them taken, so I hope the impression given by Bob's beautiful plants will inspire more interest in fern-growing and bring in a few more members to the Society in the coming months. Congratulations, Bob.

SOUTHPORT FLOWER SHOW 1976

J W Dyce

The long spell of very dry and hot summer weather had a devastating effect on ferns this year and this reduced the number of fern exhibitors at the Show. However, it did not affect the standards which on the whole were high and some fine exhibits appeared on the stands. Both the Brookfield groups as usual were very good and very little sun-scorch was to be seen on their Athyriums, much less than last year in fact! Rodney Brookfield's group was but little behind that of his father whose splendid collection of plants fully deserved the continued award of the Society's Silver Challenge Trophy. Lady Fern varieties predominated in both exhibits, among them *Athyrium filix-femina* 'Victoriae', 'Plumosum', 'Clarissimum', 'Frizelliae', 'Drueryii' and 'Cristatum'. Other ferns were *Polystichum aculeatum* 'Pulcherrimum Bevis' and 'Gracillimum Drueryii', *Polypodium vulgare* 'Cambricum', 'C. Hadwinii', 'Cornubiense' and 'Trichomanoides', *Asplenium scolopendrium* 'Crispum', crested Male Ferns and some *P. setiferum* varieties. Far behind was W W Howarth's exhibit with small plants, many of them sun-scorched.

In the other classes there were several very fine specimens, and outstanding ones from the Brookfields were *A. filix-femina* 'Clarissimum', *A. scolopendrium* 'Bolton's Crispum Nobile', *P. vulgare* 'Cornubiense' and 'Cambricum Hadwinii'. Bob Trippitt's plants were also up to their usual high standard, well on a par with and in some cases better than the Brookfield specimens. Outstanding ones were *P. aculeatum* 'Drueryii' – a superb plant, *P. setiferum* 'Plumoso-divisilobum Densum' and 'Plumoso-divisilobum Iveryanum', several fine plants of *A. scolopendrium* 'Crispum', Lady Ferns and Male Ferns. Other exhibitors were L Bayley, Mrs J Erdos and J W Dyce.

The prize-winners are listed below in order of winning –

Class 6	Group of hardy British ferns arranged naturally in an area not exceeding 100 square feet	N Brookfield, R F Brookfield, W W Howarth
Class 7	Six hardy British ferns (dissimilar)	N Brookfield, R Trippitt
Class 8	Six greenhouse ferns (dissimilar)	N Brookfield, W W Howarth
Class 9	Three foreign ferns, hardy in Great Britain	N Brookfield, J W Dyce, W W Howarth
Class 10	Three scolopendriums	R Trippitt, N Brookfield
Class 11	Three polypodiums	N Brookfield, R Trippitt, R F Brookfield
Class 12	Three polystichums	R Trippitt, N Brookfield
Class 13	Three athyriums	R Trippitt, N Brookfield
Class 14	Three dryopteris	R Trippitt, N Brookfield, R F Brookfield
Class 15	Three plants, gymnocarpium, phegopteris and/or thelypteris	N Brookfield, R Trippitt
Class 16	Three aspleniums, excluding Asplenium scolopendrium	R Trippitt, J W Dyce
Class 17	One British fern	N Brookfield, J W Dyce, R Trippitt
Class 18	One greenhouse fern	N Brookfield, L Bayley, Mrs J Erdos

The Fern Judge was, as usual, Reginald Kaye who reported that the standard of the exhibits was good, but he was critical of the accuracy in the naming of some of the specimens shown and would like to see more care taken on this point.

The Society's stand in the Societies' Tent was again well organised by Matt Busby who was in attendance all during the Show, along with the Secretary plus some additional help from Dick Cartwright and Bob Trippitt. We had visits from 14 members and from other fern men who make a point of calling every year for a fern chat and to show us fronds and plants, and we were very pleased to welcome our President, Dr Stanley Walker, who spent the better part of one day with us. Fern fronds and pot plants adorned the Stand, many of them kindly loaned by the Fibrex Nurseries of Evesham who had an exhibit in the big marquee. We also had fern books and journals on show and Matt Busby had a very interesting exhibit on our front table demonstrating the growing of ferns from spores showing the different stages in growth from the spore onwards; this attracted much attention from passers-by and emboldened many to stop and ask questions which we were happy to answer. We gathered in two new members and had many enquiries which we hope will bring in more recruits.

VARIATION AND ENVIRONMENT

C T Druery

(in the Gardeners' Chronicle 27 February 1897)

.... It seems to me the belief that no true variety will arise if the environment be constant cannot possibly be upheld ....

The cause of the first departure is a profound mystery, as is the point of its commencement. In the fern it may be in the spore, it may be in a modified antherozoid or archegonal cell, or it may even be in some subtle local modification of the parental fern which consequently produces a modified spore; but in any case, for the time being the origin of life itself and that of its subsequent initial variation must be classed with first causes, and therefore with the unknown, if not with the unknowable. At any rate it is well, as research proceeds, to guard against the accepting as "beliefs" of theories which cannot be substantiated, since the history of science is only too rich in stumbling blocks of this description. Another moral which I deduce from the foregoing is that the study of domestic plants alone is not sufficient; what is needed is a more extensive study of plants in the wild state. This, I am certain, would lead to considerable modifications of the ideas at present held of the greater variability of plants under culture. Most of these owe their variability not so much to the culture as to the fact that they are the progeny of "sports", and hence more apt to vary again for reasons above cited; but my own opinion, based on experience in my particular line, is that original "breaks" occur just as frequently under natural conditions as under culture, though the examples being isolated and scattered about among the myriads of normal plants, are infinitely more liable to escape observation than where the plants from seed to fruition are under the trained eye of the grower ever on the "qui vive" for novelties.

C T Druery on Fern Hunting (From the *Gardeners' Chronicle* 30 July 1887). The discovery after long search of a rare species in a new locality is very gratifying, but does not add anything more than a new name to the catalogue of the local flora, but the discovery of a new and unique form, possibly of great beauty, possibly only curious, adds something new to the flora of the world.

FERN VARIETY CONSERVATION. We have written many times in the past that while the conservation of rare species demands that they be left severely alone in their habitats, the opposite obtains where good fern varieties are concerned — they must be removed to the protection of a garden if they are to be conserved. The experience of one of our correspondents, Mrs Grace Flanagan of Enniskillen in Northern Ireland, emphasises this argument forcibly. Some years ago she found a very good *Polystichum setiferum* 'Divisilobum' along with some lesser but good varieties of the same species in a lane near her home. The divisilobum and some others were collected and now flourish in her garden. She now writes — "It was very fortunate that I did save the best ferns from that laneside bank, for the bulldozers have moved in and a big gap has been made through it just where they grew and the workmen are laying sewer pipes. It is sad to see so many ferny places disappearing, hedges being cut right down and roads widened, and even some ferns growing down a grating in the town vanished in an explosion".

MEMBERSHIP LIST – Additions and amendments

New Members

ANDREW S M, 3 Walnut Lane, Hartford, Northwich, Cheshire CW8 1QN
ARRAN NATURE CENTRE, Cladach, Brodick, Isle of Arran.
BALL R B, 12 Whitaker Street, Foxton, New Zealand.
BECKETT Kenneth A, Bromley Cottage, Stanhoe, King's Lynn, Norfolk PE31 8QF
BEITEL Joseph M, Department of Botany, University of Michigan, Ann Arbor, Michigan 48109, USA.
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JENSEN Mrs E C, 42 Clavering Road, Wanstead, London E12 5EX
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MORTIMER A J, 7 Panorama Road, Evanston Park 5116, South Australia.
MULLOY Milton S, 90 Pierpont Road, Waterbury, Connecticut 06705, USA.
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NAIR Dr G B, Botanischer Garten und Institute fur Systematische Botanik, Der Universitat, Pelikanstrasse 40, Zurich, Switzerland.
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ROBERTS K M, Holden Clough Nurseries, Bolton-by-Bowland, Clitheroe, Lancs.
ROLLESTON Brian, Park Shaw Nursery, New Road, Sundridge, Sevenoaks, Kent.
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STRUCK Dr Peter, Bernstrasse 25, D-2 Hamburg 13, West Germany
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ULSTER MUSEUM, Botanic Gardens, Belfast BT9 5AB, Northern Ireland.
WARD Mrs C L, Abbey Dore Court, Herefordshire HR2 0AD
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WILLIAMS Victor C and Mrs Ethelyn C, 57 Clinton Street, White Plains, NY 10603, USA.
YOUNGSTOWN STATE UNIVERSITY, William F Maag Library – Serials, 410 Wick Avenue, Youngstown, Ohio 44555, USA.

Changes of Address

BOTANICAL SURVEY OF INDIA, Indian Botanic Garden, P O Botanic Garden, Howrah 3, India.
BOUHARMONT Professor J, Universite Catholique de Louvain, Laboratoire de Cytogenetique, Place de la Croix-du-Sud 4, B-1348 Louvain-la-Neuve, Belgium.
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CROXALL Mrs Barbara S Parris, MSc, 165 Cambridge Road, Great Shelford, Cambridge CB2 1NS
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GRIMES Jeffery W, BSc, and Mrs Hannah J, BSc, 165 Chantry Road, Chessington, Surrey.
KAMERMANS Mrs Edith M, Box 111, Lions Head, Ontario, Canada.
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LAWRENCE D W, Overghyll, Horam, Heathfield, Sussex TN21 0BG (TN21 not TH21)
LING Gordon F, Dip Ag Sci, Woods Point Road, Warburton, Victoria 3799, Australia.
NEWCASTLE–UPON–TYNE UNIVERSITY, The Periodicals Room, Newcastle-upon-Tyne NE1 7RU
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POWER Miss Teresa K, Red House, Kenton Corner, Stowmarket, Suffolk.
PRICE Michael G and Mrs Grace Romero-Price, Natural Science Building, Ann Arbor, Michigan 48109, USA.
REYNOLDS Thomas L, Department of Biological Sciences, California State University, Chico, California 95926, USA.
SINHA Dr Baxi M B, 158/A Peoples Co-operative Colony, Kankarbagh, Patna-20, India.
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UNIVERSITY COLLEGE OF WALES, The Library, Hugh Owen Building, Penglais, Aberystwyth, Dyfed SY23 3DZ
YOROI Miss Reiko, 3-chome, 14-10, Akabane Kita, Kita-ku, Tokyo 115, Japan.

Changes of Name

Delete – Brosnan Miss C	**Re-insert as** –	MARSH Mrs Cynthia, 2/78 McAlister Street. Donoonba 481, Queensland, Australia.
Delete – Mayer Martin	**Re-insert as** –	MEYER Martin. Address unchanged.

Delete from Membership List

F Ballard
E B Bangerter
Mrs E Benton
Mrs R Berry
Mrs A Blair
Mrs B A Brown
Miss M J Burnhill
D Campbell
Mrs H G Carden
R J Chinnock
Mrs J W Clark
P S Clark
Professor J Colhoun
Mrs M E Coulton
J Drinkall
P B Freshwater
Garden News
Dr J Ghatak
R B Gibbons
Miss S M Logan Home
Dr A Howard
Mr and Mrs F H Jenkins
W T Lee
R P Libby
W G Mackenzie
Mrs W R McFarland
J Mills
Professor Dr P Moens
J Mynkantas
Dr F D and Dr A J Ott
Miss T Owen
E M Payne
Major C H C Pickering
B W Proudley
A W Punter
R F Ransom
N Robinson
Mrs M Rowley
S Russell-Thomas
Lady Sainsbury
A Samat bin Abdullah
Mr and Mrs J Sanders
E Simpson
R M Smith
Sir P Smithers
Somerset Farm Institute
Mrs S B Spencer
L E Stauffer
Professor E A Turnau
P M Vicary
A Whitaker
D White
N B Williams
Mrs D S Wingrave
W Wright

MARRIAGES AND BIRTHS

We are happy to make the following announcements –

Marriages:	Richard Key – Julie Mairs on 9 October 1976 Miss Cynthia Brosnan – now Mrs Cynthia Marsh
Births:	James and Margaret Merryweather – a daughter, Elizabeth Lucy, on 13 October 1976. Martin and Hazel Rickard – a son, Edward Martin, on 29 December 1975 Roger and Barbara Worland – a son, Tomec, in November 1975.

OBITUARIES

It is with great regret that we have to announce the following deaths –

F Ballard of the Royal Botanic Gardens, Kew who died on 25 January 1976. An Obituary will appear in the next issue of the *Fern Gazette.*

Miss S M Logan Home, a member since 1960, who died on 25 January 1976.

E M Payne, a member since 1968, who died in December 1974.

Donald White, a member since 1973, who died in the early part of this year.

Norman Robinson, who died in October this year, was a member of the Society since 1950 and over many years took a very active part in the Society's affairs, serving on the Committee and pioneering the regional activities of the Society with a separate programme of meetings for the north of England. For many years he was in charge of the Society's Stand at Southport Flower Show, and was always ready to give any help he could to further the interests of the Society. And all this in spite of disabilities received in the first world war which restricted him in many ways but did nothing to damp his cheerfulness and readiness to serve in any way he could. We shall miss his cheerful northern voice greatly, particularly on the Stand at Southport where he was always ready to help any enquiring member of the public who called for advice on fern matters. He is survived by his wife and son to whom we extend our deepest sympathy.

William Wright who died in the spring of 1976 joined the Society in 1958 and was always active in our affairs, serving on the Committee for many years. Bill was a remarkable plantsman whose main interest was alpines of which he had amassed an amazing collection, all contained in a very small London suburban back garden. Every inch of available space, not only horizontally but also vertically, was occupied by splendidly grown alpine plants and Bill could unhesitatingly name and give full botanical details, world distribution and any other facts required, for each one of them. I still remember vividly the Society's excursion to Austria in 1965 which he attended. Clive Jermy was consulting various reference books on the plants we had seen during a dav's climbing; Bill was sitting at his elbow and in every case had given full and detailed information about each plant before Clive could turn it up in his books, and not once could the books prove him to be wrong. Where alpine plants were concerned he was a veritable walking encyclopaedia! A sufferer from asthma for many years, Bill ceased to take an active part in the Society's life some years ago but always retained his interest and kept in touch. His wife died soon after him and they are survived by two daughters to whom we extend our deepest sympathy.

MEETINGS PROGRAMME 1977

Meetings Secretary A J Worland, 102 Queens Close, Harston, Cambs CB2 5QN
Meetings Committee R F Cartwright, J A Crabbe, J W Dyce, J W Merryweather, M H Rickard, J R Woodhams.

Saturday 12 February	Indoor Meeting at the British Museum (Natural History), Cromwell Road, London SW7 5BD, at 2.00 pm.
Saturday 12 February	Annual General Meeting to be held at the British Museum (Natural History), Cromwell Road, London SW7 5BD, at 2.30 pm.
Saturday 21 May	Visit to the Fern Houses and outside fern borders at Kew Botanic Gardens at 2.30 pm.
Friday/Sunday 27/29 May	Weekend Meeting in the Cotswold Hills. **Leader:** Matt Busby. **Centre:** The White Hart Hotel, Stow-on-the-Wold, Glos.
Saturday 18 June	Visit to the R.H.S. Gardens at Wisley, Ripley, Woking, Surrey. Meet at 2.30 pm outside the Main Entrance.
Saturday/Saturday 25 June/2 July	Week Meeting in the Lake District. **Leaders:** Mary Gibby and Jimmy Dyce. **Centre:** Garth House, Kents Bank Road, Grange-over-Sands, Cumbria.
Friday/Sunday 5/7 August	Weekend Meeting at Llangollen, Clwyd. **Leader:** Matt Busby. **Centre:** Woodlands Hotel, Trefor Road, Llangollen.
Saturday 13 August	Visit to Oxford Botanic Garden, followed by a visit to Henry Schollick's garden at 96 Church Way, Iffley, Oxford. Meet at 11.30 am at the Main Entrance to the Botanic Garden.
Thursday/Saturday 18/20 August	Southport Flower Show. Many fern classes showing selection of best varieties. Visit the Society's Stand in the Societies' Tent.
Saturday/Saturday 3/10 September	Week Meeting at Scarborough, North Yorks. **Leaders:** James and Margaret Merryweather. **Centre:** Meersbrook Hotel, 40 Avenue Victoria, Scarborough.
Sunday 25 September	Day Meeting at Wicken Fen, near Ely, Cambs. **Leaders:** Roger and Tony Worland. Meet in the Wicken Fen Car Park at 2.00 pm.
Saturday 15 October	Indoor Meeting at the British Museum (Natural History), Cromwell Road, London SW7 5BD, at 2.00 pm.

REGIONAL DAY MEETINGS

Suitable dates to be arranged by direct personal contact with organisers —

Midlands: A R Busby, Department of Biological Sciences, University of Aston in Birmingham, Gosta Green, Birmingham B4 7ET.
South-west England: Chris and Mary Potts, 4 Montpelier, Weston-super-Mare, Avon.
Yorkshire: James and Margaret Merryweather, Ferniehurst, Station Road, Bubwith, Selby, Yorks.

British Pteridological Society
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THE BRITISH PTERIDOLOGICAL SOCIETY

BULLETIN

edited by
J W DYCE

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1977

BRITISH PTERIDOLOGICAL SOCIETY
OFFICERS & COMMITTEE 1977

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Dr Stanley Walker

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J Davidson Professor R E Holttum F Jackson
R Kaye Professor Irene Manton

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Edinburgh EH3 5LR

Committee
H J Bruty A R Busby R F Cartwright
P G Coke J A Crabbe J W Grimes A C Jermy
H L Schollick F J Tingey S L Williams

The Society is open to all interested in any way in FERNS and FERN ALLIES upon payment of an annual subscription of £5.00 (subscribers), £4.00 (full members), £3.00 (students under 25 years old), £3.00 (members not receiving Gazette). Full details will be sent upon application to Membership Secretary.

Back numbers of the GAZETTE and the BULLETIN are available for purchase either as complete sets or single issues. Full details can be obtained from the Secretary.

THE
BULLETIN

Vol 1 1977 No 5

SECRETARIAL NOTES

Many of my correspondents from many countries find that they have to wait much more patiently than in the past for my replies, and for this I must crave their indulgence. In recent years the work of the Society has greatly increased, and inversely, because of advancing years, my capacity for work has decreased! A few years ago Dr Barry Thomas lightened the load by taking the Treasurership off my shoulders but now it has become more oppressive again and I must needs shed more loads. This time it is the Membership Secretaryship and again we have been exceedingly fortunate in finding the right man for the job in Lt Col Philip Coke who is well qualified with previous experience in this kind of work. He takes over the duties at the end of this year and will take charge of all membership records, including subscriptions. *A notice appears at the end of these Notes giving detailed instructions for the guidance of members.*

BPS RECORDER FOR FERN DISTRIBUTION – While on the subject of new posts, will members please note that the Society has appointed A R (Matt) Busby, Department of Biological Sciences, University of Aston in Birmingham, Gosta Green, Birmingham B4 7ET, to be our Recorder for fern distribution in Britain. All new records which in the past have been sent to the Secretary or other officers of the Society, should now be sent direct to Matt Busby, giving full details of where found, with preferably a full national grid reference, and if possible, a frond for confirmation purposes. All new records received will be passed on to the Biological Records Centre, and will also be published annually in the Bulletin as is done at present with our field meetings new records.

MEETINGS – Meetings Cards for 1978 are enclosed with this Bulletin to all inland members. Overseas members, visiting Britain, can obtain them on application to the Meetings Secretary.

Please note that it is not **essential** to complete and return to the Meetings Secretary the form attached to the Meetings Programme to become eligible for attendance at field meetings, BUT failure to do so will mean that any additional information such as the cancellation of a meeting or the change of date or venue cannot be advised to you.

Meeting in Mull – 1978. In the Meetings Programme will be seen the intimation of a field meeting to be held in Mull this summer by the University of York Natural History Society. All branches of natural history will be studied, and as the chairman of the society and leader of the meeting is our member, James Merryweather, ferns will also come in for their due amount of attention. Any of our members who would like to join the party are cordially invited to do so, BUT please note that this is not a BPS meeting and all correspondence should be addressed to James Merryweather, 8 Howard Street, York.

PUBLICATIONS BY AIRMAIL. We are prepared to send publications by airmail to overseas members, *provided they advise the Membership Secretary accordingly and pay an additional subscription to cover airmail fees, in the case of full members receiving both our publications £1.50, and for members receiving the Bulletin only £1.00.* The amounts should be sent with annual subscriptions.

READING CIRCLE. The American Fern Journal, a quarterly containing much information for those seriously interested in ferns, is circulated to Reading Circle members. To join, apply to Mrs Mary Potts, 4 Montpelier, Weston-super-Mare, Avon.

COMPILING A COMPREHENSIVE INDEX FOR THE FERN GAZETTE –
The Fern Gazette which was begun in 1909 is now in its 11th volume. Each volume has its own index but none of them is very comprehensive and there has been a demand in recent years from some members who possess and make use of the old volumes, for a complete and more detailed index. We agree that such an index is overdue but so far none of the officers of the Society has been able to spare the time to undertake the task. More pressure is now being put on us to do something about it and we invite any member or members who feel competent to undertake the work to get in touch with the Secretary.

THE GREENFIELD FUND – The Fund now stands at £1000 and there is accrued interest available for help to members with approved projects. The requirements are simple and are well within the reach of any member who may feel that he/she would like to undertake some small project among ferns or for the Society but is precluded because of the possible expense. The Fund was set up to help members and we invite applications which should be sent to the Secretary. Applications should contain a brief synopsis of the project, including dates of the proposed work and a breakdown of the expenses foreseen. The kinds of projects envisaged include a study of the ecology and/or distribution of selected native species.

IMPORTANT NOTICE. *Will all subscribers and members please note* that from 1 January 1978 the Membership Secretary of the Society will be Lt Col Philip G Coke, Robin Hill, Stinchcombe, Dursley, Gloucestershire. All membership matters at present handled by the Secretary and the Treasurer, ie: processing of new applications for membership, changes of address, resignations, etc, and all subscription payments, except those made direct to our bankers by bankers order, also all subscription enquiries, should now be sent to him direct. While the Secretary's address will continue to be used as the headquarters of the Society and can still be used as a clearing office in case of doubt until the new system becomes fully operational, WE ASK MEMBERS TO REMEMBER that the Secretary will not have records enabling him to answer any queries concerning subscriptions, and he can only pass them on to Philip Coke, incurring delay, additional postal expense and unnecessary additional labour which the Secretary wishes to avoid.

ACKNOWLEDGEMENTS. Again I have to give thanks to our contributors who have helped me by supplying material for this issue, also to Jim Crabbe and Martin Rickard for editorial assistance, and to Metloc for their unfailing consideration and willing co-operation.

FINANCIAL STATEMENT AS AT 31 DECEMBER 1976

ORDINARY ACCOUNT

Income 1975		£	£
£807.35	Subscriptions		1997.40
7.60	Donations	6.25	
	Special donations for Stansfield Medals	63.00	69.25
82.72	Sales — Gazettes, Newsletters, Bulletins	97.42	
6.00	Victorian Fern Craze	27.25	
	Hardy Ferns	598.56	
18.84	Reprints	154.07	
10.61	Sundries	55.28	932.58
38.01	Interest on Deposit Accounts		45.80
			£3045.03
Expenditure			
£251.00	Metloc a/c Bulletin Vol 1 No 4		347.93
790.00	Econoprint — Gazette Vol II part 4		975.00
	Binding of Hardy Ferns		274.06
73.01	Printing and stationery		133.58
155.18	Administration expenses and postage		321.16
	Subscriptions to societies		25.60
2.35	Bank charges on current account		6.50
	Indoor meetings costs		10.50
	Stansfield Medals		45.96
	Capital advance to BPS booksales		250.00
			£2390.29
	Excess of income over expenditure		654.74
	Balance carried forward from December 1975		149.77
	Total		804.51
	Transfer to publications account	313.42	
	Transfer to Greenfield Fund	221.80	535.22
	Balance carried forward in Ordinary Account		£269.29

PUBLICATIONS ACCOUNT

Income	Balance carried forward	941.14
	Transferred from ordinary account	313.42
		1254.56
Expenditure		
	Metloc — reprinting Gazettes	254.56
	Balance in hand	£1000.00

GREENFIELD FUND

Income	Balance carried forward	824.20
	Transferred from ordinary account	221.80
	Interest	48.00
		£1094.00

TREASURER'S REPORT

This is the first Treasurer's report covering a financial year running from January to December. The change in subscription date, together with the increase in the amount due, has created a great deal of extra work because of the large number of incorrect payments which have been made. The Society's financial position is reasonably sound, although there were still many members who had not paid their subscriptions by the end of the financial year. This results in costly and time-consuming correspondence. It would be appreciated if those members who do not pay by standing bankers order would consider doing so in the future. Bankers order forms can be obtained from the Treasurer. The total amount of monies held by the Society has increased due to the greater revenue received from both subscriptions and sales. Members should note, however, the greater costs of printing the Gazette and the Bulletin, and also the effect of the increased postal charges. The Treasurer is reasonably hopeful about the coming year. If prices are more stable we should not find ourselves with a deficit for 1977.

Special donations for the Stansfield Medals surpassed expenditure which leaves us with a small reserve for a future occasion. I would like to take this opportunity of thanking once again those people who made donations towards these Medals.

This year's secure finances have enabled the Committee to transfer an extra amount of the Greenfield Fund to give it a working capital of £1000. The amount of accrued interest is now £94 and there has not yet been a single claim upon it.

THE ANNUAL GENERAL MEETING – 12 FEBRUARY 1977

The 74th AGM of the Society was held at the British Museum (Natural History) in London on 12 February 1977 in conjunction with the Spring Indoor Meeting. As usual it was well supported by an attendance of 41 members. The President, Dr Stanley Walker was in the Chair.

The Secretary reported a continued growth in the membership in spite of the steep increase in the subscription rates and new members during the year totalled 69. It was still too early to give an exact figure for the "drop-outs", but the indications were that the year's recruiting had more than offset the loss. A breakdown of the membership figure of 509 showed 85 subscribers, 32 students and 35 husband/wife joint members.

The Treasurer's Statement showed our finances to be in a healthy state in spite of greatly increased running and printing costs. The arrangement to take over from the publishers at no cost to us the unbound copies of Reginald Kaye's book *Hardy Ferns* has worked well and the book is on sale to members at a comparatively cheap rate, greatly benefitting our Publications Fund. A transfer was made from this Fund to the Greenfield Fund to bring the balance up to the aimed for figure of £1000.

In the editorial reports Dr Page stated he was successfully establishing a spring or early summer publication date for the *Gazette* and the material for the 1977 issue was already in the hands of the printers. (Unfortunately, printing delays prevented us from keeping to our planned timetable. – Ed.) The Secretary reported that he is being well supplied with *Bulletin* material and the 1976 issue was published at the end of November.

Dr Stanley Walker was elected to the Presidency for his second year in the Office and the other officers were all re-elected. The retiring Committee members were Major Richard Unett and John R Woodhams both of whom have been very active in the Society's work during their years in office and we are very grateful to them. They are replaced by Jeffrey W Grimes and Stuart L Williams.

Mr Noel Brookfield of Southport was nominated by the Committee for honorary membership in the Society and he was elected. This recognises his contribution to the fern cult by his magnificent displays over many years of first-rate fern varieties at Southport Flower Show with their consequent stimulus to new fern growers.

MEETINGS 1977

The Spring Indoor Meeting on 12 February at the British Museum (Natural History) before and after the AGM was the usual informal gathering of members, 41 in number, among them some new ones whom we were pleased to welcome, and who quickly learned as they always do on such occasions that we are not as formidable as the name of the Society would imply! There were exhibits to see, books to buy, plenty of opportunity for chatting with kindred spirits and an acceptable buffet well organised by Joan Woodhams, which was much enjoyed. Clive Jermy gave a talk on the distribution pattern of north temperate ferns, and we finished the day with a showing of members' slides.

The Autumn Indoor Meeting was held at the British Museum (Natural History) on Saturday 15 October with a very satisfactory attendance of over 40 members and friends present. The highlight of the meeting was the talk by George Gable of the London College of Printing on "Botanical illustration and printing methods", a subject dear to the hearts of many of us who take a great interest in the fine illustrations in many of the early fern books. We learned much about the processes involved in the production of these old books, some of which were on exhibit. We also had frond exhibits, sales of books and plants, and we finished the day with a showing of slides provided by members. The catering arrangements were in the capable hands of Joan Woodhams and we thank her for all the work she put into giving us a very enjoyable buffet meal.

DAY MEETINGS

Kew Meeting — 21 May. This hardy annual attracted the usual large number of members, 31 on this occasion, many of them new and experiencing for the first time the friendly atmosphere which always surrounds this meeting. It was a great pleasure to have with us and to welcome Miss Crookes from New Zealand, who revised Dobbie's *Ferns of New Zealand* and at present is busy on another revision. John Woodhams gave an informative talk explaining the system employed by the Kew Botanic Gardens for the reception and recording of the large numbers of plants received there from all parts of the world. He also talked on potting mixes for ferns and we were fortunate to have with us Hazel Key of Fibrex Nurseries in Evesham and her daughter Ursula, both of whom make the ferns in the nursery their special care. From her experience as a successful grower of pot ferns Hazel was able to contribute much to the discussion. Afterwards we did a tour of the fern houses and noted with approval the new lay-out inside the entrance to the tropical house. Thanks to the hospitality of Professor and Mrs Holttum many of us finished the day with our usual gathering at their home, a few minutes' walk from Kew, where we did full justice to tea and our hostess's delicious home-made scones and cakes. To cope with the "mob" which descended on them must have entailed a lot of preparation and hard work – thank you, Eric and Ursula Holttum.

The Royal Horticultural Society Gardens at Wisley in Surrey – 18 June. A good attendance of 22 members gathered outside the Gardens' entrance and between us we had a sufficient number of Fellows' tickets to get the whole party in without cost. It was a dull day but fortunately kept dry. We had with us Graham Thomas who last year gifted his fern collection to Wisley. A fern garden has been laid out in the woodland near the rock garden to accommodate the ferns which are settling down well and include many very fine plants. With Graham living not too far away and Peter Barnes our member who is on the Wisley staff, to keep an eye on the collection, it should flourish and, we hope, increase in size and range by gifts of ferns from other sources. We spent some time admiring and discussing the collection and most of the party had a look round other parts of the Gardens and finished up with tea and cakes in the restaurant before departing for home.

Oxford Botanic Garden and Henry Schollick's Garden – 13 August. This was a very popular meeting with 23 members and friends present. We gathered at the Botanic Garden at 11.30 am and after visiting the fern borders as a group we all went our own ways to see the rest of the Gardens. It was pleasing to note that *Athyrium filix-femina* 'Oxford Plumosum' is still growing there – a fern with a most intriguing history, it is now over 250 years old. After lunch – a picnic one in the Gardens for most of us – we went on to visit Henry and Peggy Schollick at Iffley, and we spent a delightful afternoon in their garden, wandering around to see the ferns and other plants or just chatting. We were greeted on arrival with a glass of wine, and later Peggy laid on a buffet tea which was very much enjoyed. Many of us finished up indoors among Henry's large collection of fern and other books and it was with difficulty that some of the party could tear themselves away from his library. We had a most successful and happy afternoon which fortunately kept fine and we thank our hosts for their generous hospitality.

Wicken Fen, near Ely, Cambridgeshire – 25 September. We had a dry but not too warm afternoon for this meeting which 10 members attended. It could not be called a fern outing for there appear to be very few ferns in the reserve, the only one seen in any abundance being *Thelypteris palustris*. The others noted were *Athyrium filix-femina, Dryopteris austriaca, D. carthusiana, D. filix-mas* and *D. pseudomas*, and some of these we saw only as single plants. However, it proved a pleasant get-together for some members who have been unable to attend the longer meetings, and we could talk about ferns even though unable to see many !

REGIONAL DAY MEETINGS

We again included in the Meetings Programme the names and addresses of members willing to organise local meetings, and again Yorkshire members seem to be entirely disinterested so there is nothing to report from this area. The other two regions, the

Midlands and South-west England continue to support their organisers and have enjoyed some excellent outings. There is a need for more activities of this nature and any member who feels that his area is being neglected by the Society and is prepared to do something actively about it should write either to the Secretary or to the Meetings Secretary and we shall give any required help.

Midlands. As well as organising and leading two weekend meetings this year and giving talks on ferns to interested groups, Matt Busby has been very active on our behalf in his area and we append four reports received from him. He is still being approached by local gardening societies for talks on ferns and the interest shown at these gatherings is very heartening. A number of enquiries is received about the work of our Society and the advantages of membership. Gardeners are obviously interested in ferns and such talks help to give them an appreciation of the value of ferns both in the home and in the garden.

He tell us – "There is now much informal contact between members in my area, especially between new ones who may not yet have many ferns to show but are happy to have other members round occasionally for coffee and fern talk. I am very lucky to have members like this and I am doing everything I can to encourage them."

Solihull Flower Show – 23/24 April. Once again the Solihull Horticultural Society very kindly allowed us to stage an exhibit of ferns on behalf of our Society. Due to the cold spring weather only half of the exhibit consisted of hardy ferns, and the rest of the space was filled with a collection of indoor ferns. The spore germination display aroused much interest and the Society's information leaflets were available to enquirers.

Meeting at the University of Aston in Birmingham – 7 May. On Saturday 7 May we held an informal meeting at the University which was attended by 9 members. The afternoon started with a visit to the Fern House after which refreshments were served and colour slides of ferns were shown. There was discussion on the possibility of organising a coach trip from Birmingham by the group to visit gardens with fern interest but it was decided that the cost of transport for such a small group is at present prohibitive. Our Coventry member, Mrs Gwladys Tonge, delighted everyone by showing one of her paintings of *Polypodium interjectum.* We little realised we had such artistic talent in our midst and we look forward to the day when we can put on an exhibition of her work.

The Coughlins' Meeting – 26 June. On Sunday 26 June local members were once again given the opportunity to see Ray and Rita Coughlin's lovely garden in Lydiate Ash, Bromsgrove. Ten members and their families spent a sunny day among the ferns, shrubs and alpines which adorn their secluded garden. Ferns which particularly caught the eye were *Athyrium filix-femina* 'Clarissima', *A. f-f.* 'Plumosum Axminster' and a charming dwarf shield fern from the southern hemisphere, *Polystichum mohrioides.* After a splendid cold buffet accompanied with our hosts' excellent home-made wine, the meeting ended and members departed taking with them many ferns, evidence of Ray and Rita's generosity. May I express the thanks of everyone there to our hosts for their hospitality.

From 31 August to 7 September, Aston University was host to the 139th Annual Meeting of the British Association for the Advancement of Science. I took full advantage of this by opening my fern house to visiting members and provided them with a free packet of hardy fern spores together with an instruction leaflet and the Society's information leaflet. The fern house was visited by many of those attending and it should prove to be a useful shop window for our Society to people who are always seeking something different and challenging.

South-West England. Mary and Christopher Potts organised a similar series of three meetings to those held last year and programmes were sent to all members within reasonable reach. *Anyone in the area who did not receive a copy and would like to participate in these meetings in future, please contact the organisers.* Mary says the programme had "a smarter presentation this year but is devoid of ideas for new places to visit". I am sure there must be some members in the south-west with new ideas, so why not get in touch with Mary. Her address is 4 Montpelier, Weston-super-Mare, telephone W.S.M. 28562, She and Christopher are devoting a lot of time towards making the Society really active in the south-west and they deserve all the encouragement and help they can get. Mary reports as follows on the meetings –

The Potts at Home – 11 June. Our fern day was well attended with 9 members; the morning was spent discussing plants and fern books and exchanging a wide selection of fern species and varieties. After lunch – which was somewhat extended into the afternoon – we visited Bristol Botanic Gardens. The cool and wet weather emphasized the lush growth of the plants and shrubs after last year's drought, and quite a different range of flowers was observed from those seen in June '76. Both the hardy and tender fern collections are fast expanding, some of the outdoor species being situated amongst the enormous water-washed limestone rocks. These are formed into grottoes which must be Victorian in origin and provide a perfect landscape for a fern collection. The tour of the Gardens was again excellently guided by Mark Smith and some members left gratefully clutching gifts of plants.

Philip Coke's Fern Day – 9 July. Eleven members and friends met at Philip Coke's house at Stinchcombe in Gloucestershire. Philip has recently returned from a trip to Australia and was able to show us some of the ferns that he had brought back. We saw some unusual adiantums, one with fine pinnules and pink unfurling fronds, *Davallia elegans* and *Plagiogyria articulata.* Philip's own expanding collection of ferns kept us busy and entertained throughout the day. The varieties of the lady fern – many grown from spores – were looking particularly well. Many plants were exchanged and members left after a most enjoyable day. – Many thanks to Mary Coke for providing us with an excellent lunch.

Kenneth Adlam's Fern Day – 23 August. There was an attendance of 14 members and friends at Kenneth Adlam's for his fern day. Dolsheen Adlam coped excellently with the large party in spite of having recently broken her arm and, with the help of friends, kept us all "well fed and watered" throughout the day. Kenneth's fern collection is flourishing and yet more beds and borders are being dug to accommodate new acquisitions. We admired some fine plants of *Woodwardia radicans, Blechnum tabulare* and pans of polypodies, also a newly built wall crowned with varieties of polypody and planted on its north side with varieties of *Asplenium trichomanes*. Plants were again exchanged, many provided by Philip Coke who had generously split some of his own fine specimens.

Mary adds — All the south-west fern meetings have been well attended and much enjoyed by members; information has been exchanged and new friendships formed. More people are growing from spores and this facilitates the distribution of many species and varieties of ferns at these meetings. It is hoped that other members in this part of the country will attend some of these meetings next year when they will be assured of a warm welcome. They really have gone with a swing this year, due, I am sure, to the copious amounts of food and booze that have been supplied on all occasions. (They don't sound like fern meetings to me! Most unfortunately, I could not attend any of them and I certainly seem to have missed something! — *Ed.*)

WEEKEND MEETINGS

The Cotswold Hills — 27/29 May. A very satisfactory number of 15 members and friends reported on the Friday evening and Saturday morning for this meeting, centred on the White Hart Hotel, Stow-in-the-Wold in Gloucestershire. Matt Busby was the leader and had done his 'home-work' well. He gave us a very interesting weekend in this area which is not over-rich in fern species but nevertheless produced 15 ferns and 3 horsetails.

We started off on foot on the Saturday morning to a deep narrow valley south of Broadwell Hill. Matt had information that both *Botrychium lunaria* and *Ophioglossum vulgatum* grew here but only the latter was found — in great abundance in a most typical habitat. It seemed most unsuitable for *B. lunaria* and I have still to be convinced that it actually does grow there. In addition to the adderstongue we found 4 other ferns and 2 horsetails in this valley, *Athyrium filix-femina, Dryopteris austriaca, D. filix-mas, D. pseudomas, Equisetum arvense* and *E. palustre.* Of these only *D. filix-mas* appears in the *Atlas of the British flora.*

Picking up the cars we travelled north on the Bourton-on-the-Hill road for a few miles to an old quarry where we found flourishing colonies of *Asplenium adiantum-nigrum, A. scolopendrium, A. trichomanes* and *D. filix-mas.* Further north at quarries near Bourton only *A. scolopendrium* and *D. filix-mas* were seen. At Blockley 5 species were noted on old walls in the village, *A. adiantum-nigrum, A. scolopendrium, A. trichomanes, D. filix-mas* and *Polystichum aculeatum.* In Bourton Woods we fared better with *A. scolopendrium, A. filix-femina, D. austriaca, D. filix-mas, D. pseudomas, Polypodium vulgare, P. aculeatum, Pteridium aquilinum, E. arvense, E. palustre* and *E. telmateia.* The last stop of the day was in The Warren, a wooded area about 2 miles north of Condicote where only *A. scolopendrium, D. austriaca, D. filix-mas, D. pseudomas, E. arvense* and *E. palustre* were found. In Stow itself were very few ferns but on the old walls in the yard of the Kings Arms Hotel grew *A. ceterach, A. ruta-muraria* and *A. trichomanes.* A feature of the day was the very large numbers of new records for the *Atlas.*

On Sunday we travelled south-west to Woodbridge and Chedworth Woods, only about 6 miles from the outskirts of Cheltenham. In Woodbridge we recorded *A. ceterach, A. scolopendrium, A. trichomanes, D. austriaca, D. filix-mas, D. pseudomas, P. aquilinum* and *E. arvense,* and in the woods *A. filix-femina, D. austriaca, D. carthusiana, D. filix-mas, D. pseudomas, P. vulgare* and *P. aquilinum.* Some of the party went on further to the site of an old Roman temple where ferns were more numerous – they noted *A. ceterach, A. ruta-muraria, A. scolopendrium, A. trichomanes, A. filix-femina, D. austriaca, D. filix-mas P. vulgare* and *E. arvense.* Again many of our records were new ones.

Llangollen – 5/7 August. We were a party of 7 members who assembled for this meeting, centred on the Woodlands Hotel, Llangollen. On the Saturday morning we set off on foot to explore along the banks of the nearby Shropshire Union Canal for about a mile to the west of the town, returning along the parallel running River Dee. We recorded 14 fern species, some of them in abundance; there were 4 spleenworts, *Asplenium adiantum-nigrum, A. ruta-muraria, A. scolopendrium* and *A. trichomanes,* abundant *Athyrium filix-femina* and *Dryopteris filix-mas,* a few plants of *D. pseudomas* and *D. austriaca,* both *Polypodium interjectum* and *P. vulgare, Polystichum aculeatum* in quantity along the rocky wooded banks of the river, a colony of *Equisetum arvense* and several patches of *Pteridium aquilinum.* But, best of all, was a colony of *Osmunda regalis,* 3 or 4 good-sized clumps growing in the walls of the canal – this is a new record for the square, and rather a surprising one for we could not understand how the fern could have been overlooked in this exposed habitat. The *D. pseudomas* was also a new record.

In the afternoon we travelled to the north of Wrexham to Llay Bog where there is a good stand of *O. regalis* to be seen. Another new record was *D. carthusiana,* growing nearby. We finished the day in a wood along the banks of the River Alun near Cefn-y-Bedd, but the ferns were few; a good colony of *E. telmateia* grows on the river banks in one place and *D. pseudomas* was again a new record for this square.

Sunday morning was spent in the limestone mountains to the north of Llangollen, and we explored along Offa's Dyke, on the limestone screes below the high cliffs of Eglwyseg Mountain, but they were too unstable to support a good fern population. We noted 9 species which included *P. aquilinum* struggling through the loose stone and very yellow in colour. *A. ruta-muraria* and *A. trichomanes* were fairly common and in one part *D. villarii* and *Gymnocarpium robertianum* along with some *A. scolopendrium,* also a few plants of *Cystopteris fragilis* which was another new record.

Although we did not find the area – in the parts we visited – the best of fern country, we had an interesting weekend and were happy to establish some useful new records.

WEEK MEETINGS

The Lake District – 25 June/2 July. Our centre was the Lymehurst Hotel in Grange-over-Sands, chosen because it is conveniently situated for exploration of the south-west corner of the area, a part which we have tended to overlook during our many visits there. A very satisfactory turnout of 17 members and friends reported on the Saturday evening and Sunday morning, some staying with us for the week, others for only part of the time or one day only. Among them we were particularly pleased to welcome Dr Gerhard Schulze and his wife, Margaret, from Ludwigshafen in Germany, and it is pleasing to know that we were able to give them a very interesting week among our British ferns; we did our best to show them as many different species as possible in this fern-rich part of our country.

The leaders were Mary Gibby and Jimmy Dyce, and deciding not to ignore our immediate neighbourhood as so often happens on our excursions, we spent the Sunday exploring places in the vicinity of Grange. In the morning we visisted Eggerslack Wood behind the town, walking up the steep slopes to the open fell beyond with its stretches of limestone pavement. The wood itself was also on the limestone, much of it exposed rock with the characteristic deep crevices, known in the North of England as grikes. We started the day well with the find of a cristulate *Polystichum aculeatum,* but not a wild find really since it was growing on an old rubbish heap and was obviously a reject from some local garden. Anyhow, it is now back in a garden once more! We recorded 9 fern species in the wood, *Asplenium scolopendrium, A. trichomanes* and *P. aculeatum* on the limestone and in the grikes, and in the less stony places *Dryopteris austriaca, D. filix-mas, D. pseudomas* and in a habitat which could not be regarded as typical,*D. carthusiana.* The other species were *Pteridium aquilinum* and a few very small and stunted plants of a polypodium difficult to identify but considered to be *Polypodium interjectum.* On the open hill above additionally we noted *A. ruta-muraria, Athyrium filix-femina, Cystopteris fragilis* and *D. villarii,* the last-named in quantity. The fern variety promise of the morning continued, and in this short hunt we did better than during the whole of a week's meeting in most years. In the wood two fine ramose scolopendriums and a fully crested, very regular and shapely male fern were collected, while on the open pavement above we found a very interesting scolopendrium with its rows of spore heaps sunk into the lower surface of the fronds and appearing as raised ridges on the upper surface. The spores are not yet fully developed but there are indications that they will be discharged from both upper and lower surfaces. Lowe records such a variety under the name 'Suprasoriferum'.

In the afternoon we travelled west and down to Humphrey Head, a narrow limestone headland on the coast projecting into Morecambe Bay. Our last visit was in 1964, when a good *P. australe* 'Semilacerum' was found. We had no such luck this time but noted two additional species to the records made during that visit, *D. austriaca* and *D. pseudomas.* In all 10 species were seen, *A. adiantum-nigrum, A. ruta-muraria, A. scolopendrium, A. trichomanes, D. austriaca, D. filix-mas, D. pseudomas, P. australe, P. aculeatum, P. setiferum,* also a large colony of the hybrid *P. X bicknellii.* Still with time in hand, we visited the most northerly station (?) for *Adiantum capillus-veneris* which grows along these shores. When we saw the fern in 1974 it was in a flourishing state and expanding its habitat, but alas! the hot dry summer of 1976 has taken its toll and only a few plants were to be seen where before they could be counted by the dozen. Let us hope, however, that the crowns are not dead and will break into life again with the return to more normal weather conditions. (Since our visit it has been reported to me that the fern is still flourishing in abundance in a continuation of the colony a little further along the coast — we turned back too soon! This is pleasing news. — ED.) Another casualty from this place is *A. ceterach*; many very large and strong-growing clumps flourished on the floor of an old quarry area and have now completely disappeared. *A. trichomanes,* another large-growing vigorous fern in the same place, is still surviving but showing signs of its struggle during the drought. This is rather surprising, for with its inbuilt protection against dry conditions one would have thought that the ceterach stood at least an equal survival chance with the trichomanes — which leads one to wonder if perhaps not drought but unscrupulous collecting is responsible for the disappearance.

We had hoped to have Fred Jackson with us but he was unable to make it, so on the Monday we decided to visit him at his home in Borrowdale to see his fern collection and to show our newer members some of the fern-interesting places in the dale. It was, unfortunately, one of those Lakeland wet days but not excessively so, although it did restrict our freedom of movement somewhat. We admired the many ferns in Fred's small garden under damp conditions – how very often have we done just that on many previous visits! – and those in the party who had not been before were able to see some superb ferns well grown, and some very interesting aspenium hybrids. Fred has a special glass-sided case at eye level for these treasures, all beautifully grown in pots sunk in spaghnum moss. This small collection contains *A. X alternifolium, A. X murbeckii, A. septentrionale* and others including fine specimens of the crested and ramose varieties of *A. trichomanes*. Dr Schulze who is very familiar with the asplenium hybrids on the Continent was particularly interested in this collection.

In the afternoon, accompanied by Fred, we visited Johnny's Wood. Readers may recall that in last year's Bulletin (page 171) I included a short paragraph telling how Fred had been instrumental in getting this very botanically-interesting wood taken over by the National Trust to save its plants from grazing sheep. We noticed on this visit some of the results of Fred's action – the ferns growing as they have not done for many years. Soon after entering the wood we admired a fine large-growing clump of *D. oreades (abbreviata)* and abundant *D. pseudomas* very golden in colour. A feature of this wood is its *D. assimilis* and there were many plants of what seemed to be a hybrid form which exercised the minds of Mary Gibby and our other botanists for some time. We were also shown by Fred an unusual large-growing lady fern with black scales and pink stems which were covered with a grey waxy bloom. The wet weather made conditions rather uncomfortable so our newer members were unable to see all of the large number of fern species which inhabit the wood; in the past we have recorded 16 from this special area – *A. trichomanes, A. filix-femina, Blechnum spicant, Cryptogramma crispa, D. assimilis, D. austriaca, D. carthusiana, D. filix-mas, D. oreades, D. pseudomas, Gymnocarpium dryopteris, Hymenophyllum wilsonii, Oreopteris limbosperma, Phegopteris connectilis, P. vulgare* and *P. aquilinum.* An interesting evening was spent in our hotel when Dr Schulze showed us his herbarium collection of *Asplenium cuneifolium* and other ferns collected on the Continent, all of them superbly mounted.

Tuesday was dry and sunny and was spent in Silverdale where we visited Reg Kaye in the morning to see his ferns. During the past year he has spent much of his time clearing a large overgrown rocky part of the nursery and is establishing in it a large part of his fern collection which can be seen to full advantage in this new abode. Fern variety growers get overwhelmed when they see the size and range of Reg's collections which occupy several parts of the nursery and one would have to spend several days there to fully comprehend the vast number of first-rate varieties he possesses.

During the afternoon we explored some of the limestone pavement areas in Silverdale, but because we did not follow directions closely enough we did not find a very interesting wooded part which we particularly wanted to see and finished up instead in some woodland which was not over fern-rich where only 7 species in small numbers rewarded our searching. However the afternoon was made memorable because we "mislaid" the two ladies in our party for a couple of hours, quite worrying while the emergency lasted but it had an amusing ending which will be a cause for banter for some years to come whenever these ladies are present at meetings!

Wednesday continued fine and with the object of showing more of the more interesting of the Lakeland ferns to Dr Schulze and other members who were new to the area, we travelled north through Ambleside to Thirlmere and up the west side of the lake to a deep ravine running down from the hills above, Launchy Gill, into which one can penetrate for about 200 yards until the way is barred by waterfalls. The stream was low and allowed easy access to the deep sheltered spot where many ferns luxuriate in great numbers, among them *G. dryopteris* and *P. connectilis* occupying crevices and ledges, along with *C. fragilis, P. vulgare* and *P. aculeatum.* In the deeper recesses is a large colony of *A. viride* and the rocks are covered with *H. wilsonii.* During previous visits in 1971 and 1973 we logged 17 species for this small habitat and thought we had found all the ferns growing there; nevertheless, this time we added two hybrids, *D. X tavelii* and *P. X mantoniae.* The others are *A. viride, A. filix-femina, B. spicant, C. crispa, C. fragilis, D. austriaca, D. filix-mas, D. oreades, D. pseudomas, G. dryopteris, Huperzia selago, H. wilsonii, O. limbosperma, P. connectilis, P. vulgare, P. aculeatum* and *P. aquilinum.*

We returned through Ambleside where we took the opportunity to do some shopping for the high quality wet-weather overclothing available there, then across to the west over the very steep Wrynose Pass and down to the Duddon Valley. In one place here a magnificent colony of *Osmunda regalis* grows and it is sheer delight just to stand and admire the regal beauty of the well-named Royal Fern covering the steep slopes by the sides of a waterfall. The other ferns along the river banks are *A. filix-femina* in abundance, *B. spicant, D. austriaca, D. filix-mas, D. oreades, D. pseudomas,* and *O. limbosperma,* all equally abundant, *P. connectilis,* and on the rocks *H. wilsonii.* On the hillside above, the ubiquitous fern of the Lake District, *C. crispa,* flourished in large clumps, particularly along the road-side in the drystone walls.

The weather was far from promising on Thursday when we set off for Whitbarrow, famed since the early days of our Society — and before — as the breeding ground of many of the finest of our fern varieties; we still hope to find more and so this pilgrimage is undertaken whenever we are within reach of this huge lump of limestone, about 3 miles long and 1 mile wide, rising steeply to 700 feet. So far our hopes have not been fulfilled but there is an awful lot of ground to be searched, steep slopes and cliffs on the sides and stretches of pavement and limestone ridges on the undulating summit plateau. This time a high wind swept across it and drove the rain through our clothing — at least, in the case of some of us who, having made full provision for such weather on the previous day, had absentmindedly left our new purchases down below in the cars! In spite of the weather we still managed to make a complete check of the ferns, seeing all those previously recorded and adding one more in the shape of *D. oreades,* bringing the total to 21. All the limestone ferns were present, some in abundance, *A. ceterach, A. ruta-muraria, A. scolopendrium, A. trichomanes, A. viride, C. fragilis, D. villarii, G. robertianum, P. aculeatum* and some *P. vulgare.* In the sheltered places, in the shade of and under the juniper bushes, *A. filix-femina* was in fair quantity, along with *D. austriaca, D. filix-mas* and *D. pseudomas.* Although the hill is limestone, we find on the top many species which are not particularly fond of lime, and indeed dislike it. In the hollows on the summit where the lime has been leached from the surface by the vast quantities of rain-water which must fall on the hill and peaty layers have accumulated, we find *B. spicant,* that notable hater of lime, flourishing in large colonies, *P. connectilis* spreading happily, *P. aquilinum* and *O. limbosperma,* also *D. carthusiana* and *D. oreades,* while in a small pond a colony of *Equisetum fluviatile* seems very much at home. Near the pond were some interesting plants, found by the Doctor, which seemed to be a hybrid of *D. villarii,* and we regretted that Mary Gibby who is doing research on *Dryopteris,* had to return home earlier in the week and could not be with us to see them. Material has been collected to submit for her opinion.

It was another wet day on Friday when we rashly decided to travel further afield and visit Hutton Roof, another of those very botanically interesting limestone hills lying a few miles south of Kendal. It has a vast expanse of pavement and a profusion of ferns filling its grikes and crevices. We arranged to meet our member, Bob Trippitt from Bradford, on the summit, else we would probably have changed our plans, for the Roof was in dense cloud, the rain was falling and we had difficulty in keeping contact with each other; without a compass we would have been completely lost. We did not explore far and saw very little of the abundant fern life which we know exists there. It was one of those days when I find myself wondering what there is about ferns which can tempt me out of a dry warm car on to an exposed hilltop in driving rain and unable to see more than about a few yards in front of me, with the risk of a broken leg or worse resulting from a skid off those wet slippery rocks into a narrow deep grike! I and many other kindred spirits will never know the answer. Returning to the cars we descended to the valley to seek shelter and food in a pub, then wisely decided it would be foolhardy to return to the high ground in the afternoon. Instead we retraced our steps northwards towards Kendal and called at Sizergh Castle to see the ferns in the gardens there. They are in the charge of Malcolm Hutchinson who unfortunately was away on holiday but we had an interesting visit wandering round on our own.

This visit ended another excursion during which we were able to explore some new ground in this corner of England and renew acquaintance with some old. The fern distribution pattern now seems to be well documented and only a very few new records were added this year. Our variety hunting activities started off well on the first day but their promise was not fulfilled and we saw not a single variation on any of the following days. For those of us who visit the Lakes often there was little that was new but it was very pleasing to introduce new members, including our friends from Germany, to the many fern delights which we never tire of seeing on visit after visit.

Scarborough, Yorks — 3/10 September. Entirely new ground was chosen for this meeting, centred on the Meersbrook Hotel in Scarborough, where on the Saturday 9 members foregathered. None of them, I regret to add, were from the area although several live within easy reach of the venue. Those who did attend came from London, Essex, Cambridgeshire and Staffordshire, and our leaders, James and Margaret Merryweather, who live in York were the only ones reasonably near. The country around Scarborough was a closed book to most of us and we looked forward, rather questionably, to seeing what it could offer in the way of ferns. In the event, we were pleasantly surprised and while the more exciting species were absent, or nearly so, we nevertheless had a very good week.

On Sunday we travelled north for some 5 or 6 miles to Hayburn Wyke, an inlet on the coast with a wooded ravine behind, down which flowed a vigorous beck. Our way down was a wet and rough overgrown path and ferns grew strongly on the slopes all the way down to the stream. We noted 14 species, among them the more common ones *Athyrium filix-femina, Dryopteris austriaca, D. filix-mas, D. pseudomas* and *Pteridium aquilinum.* The lady and male ferns were abundant and very large growing and with them were many fine specimens of the hybrid *D.X. tavelii.* We were to see a lot more of this hybrid during the week, finding it almost common wherever we went. *Asplenium scolopendrium* was growing happily to a large size along the stream and on the cliff walls below a waterfall, and *Blechnum spicant* was fairly widespread. Both *Polypodium interjectum* and *P. vulgare* were found and we were delighted with the abundance of *Polystichum setiferum* growing to a very large size and with a number of good tripinnate forms among them. Incidentally, *P. setiferum* is not recorded for this square in the *Atlas of the British Flora* while *P. aculeatum* is – could this be a case of mistaken identity? We found none of the latter species here or elsewhere in the square, and in fact *P. setiferum* was much more common than *P. aculeatum* wherever we went during the week. Our most pleasing find was *D. aemula* growing along the banks of the stream and on the slopes above. We had hoped to add *Hymenophyllum wilsonii,* an old pre-1930 record, to our list but although the habitat looked eminently suitable we did not find it here or anywhere else in the district. Two horsetails were seen, *Equisetum arvense* and *E. telmateia.*

The area is noted for fossil beds and as fossils are a special interest of our leader his enthusiasm naturally spread to us all when he found, along the stream, some fallen cliff which contained fern fossils. The rocks were lower and middle sandstone shale which were easily split and several good finds were made of both ferns and equisetites. The ferns were identified as *Pecopteris caespitosa* and *Sphenopteris* species and there was also one with polystichum-like pinnules which we could not name. The equisetites were probably *E. columnaris.* Later, in the afternoon we returned to the shore to examine the rocks there and again found fern remains, mostly converted into coal and of particular interest were lengths of horsetail stems about an inch in diameter. Collecting ferns of today and with them those of some hundreds of million years ago made the day one of exceptional interest for us. Later in the week some of us were to return to continue the fossil search and more good fern specimens were obtained.

After some rain on the previous day we were glad to have Monday dry and sunny. Again the ferns of long ago claimed our attention but this time to the south of Scarborough at Lebberston Cliff a promontory on the coast. A morning spent here did not produce much of interest, however, and present-day ferns were also conspicuous by their absence – all we recorded was *E. arvense!* We retreated inland in the afternoon and our first stop was at Raincliffe Woods where ferns grow in great numbers but of the common woodland ones only. We found 9 species, dominant among them *D. austriaca* which here as in most other woods in the area was the principal ground cover plant, growing vigorously to a large size. *D. filix-mas* was also common and *D. pseudomas* with very large fronds but not very characteristic of the species; again we noted very strong-growing *D. X tavelii. A.filix-femina* and

B. spicant were of frequent occurrence and a few plants of *P. vulgare* were seen. The ubiquitous *P. aquilinum* was everywhere and in one wet place there was a good colony of *E. telmateia.* Rowbrow Wood, a little to the east and close to Scarborough was visited briefly. It contains an abundance of ferns of a few of the common species and we recorded *A. filix-femina, B. spicant, D. austriaca, D. filix-mas, D. pseudomas, P. aquilinum* and two plants of *Oreopteris limbosperma.*

A cold rainy morning on Tuesday dictated the plan of action for the day. Some of us motored up to Whitby to hunt in the bookshops instead of in the field while others decided to explore further the fossil possibilities of Hayburn Wyke, a slightly more dry activity than fern hunting through wet woods. Our book hunting produced a few rewards but not fern ones. Moving south again to Goathland we spent some time in a deep ravine named Mallyan Spout with a large beck flowing through it and a curtain waterfall from a subsidiary beck pouring over the cliff. Scenery-wise it was impressive and fern-wise even more so, for it provided excellent hunting. Along the path leading dowth to the ravine by the side of a small stream there was *E. sylvaticum, E. telmateia,* some *E. arvense* and, best of all, a small colony of the uncommon *E. hyemale.* In the small part of the ravine we had time to explore *A. filix-femina, B. spicant, D. filix-mas, D. pseudomas* and *O. limbosperma* were all present in good numbers plus, of course, *P. aquilinum.* Some small polypodies were noted, too small to identify positively, and a few plants of *P. aculeatum* and one only of *P. setiferum* were seen. On our homeward journey we stopped for a short time at High Horcum where the road at an altitude of over 900 feet passes along the side of a very deep valley. A high wind was blowing and it was decidedly cold, so very little hunting was done. However, later in the week during a second brief stop we found that ferns were very scarce on the slopes and only *B. spicant, D. austriaca, O. limbosperma* and *P. aquilinum* were seen.

We were joined on Wednesday by Chris Rhys from York University and spent the morning at Hackness, a few miles inland from our centre. Several narrow wooded valleys radiate from here to the north, south and east, and dividing into two parties we hunted one running north and one running south. The latter had very little ground cover under the trees apart from ferns. *D. austriaca* was abundant and both *D. filix-mas* and *D. pseudomas* were fairly common and very large-growing. In one place there was a good colony of *D. x tavelii,* and some *A. filix-femina, A. scolopendrium* and *B. spicant* were seen. An old limestone quarry on the high ground above contained no ferns at all. The northern valley was more productive and contained, additionally, *P. setiferum* in quantity and a few plants of *P. aculeatum,* also abundant *A. scolopendrium.* Wandering along the road and round the church afterwards, *A. ruta-muraria* was noted on walls, and along the banks of a stream, *E. arvense* and *E. palustre.* Bracken was common in places and some plants of both *P. interjectum* and *P. vulgare* were found. In the afternoon, on the east side of Broxa Forest in upland woods with very deep ravines we recorded 9 species and again *D. austriaca* was the dominant fern, some of it the form which forms clones by sending out thin underground runners, up to a foot long, terminating in subsidiary crowns. I have found this form in all parts of the British Isles, always in pinewoods where the runners can creep through the friable layer of rotted pine needles and leaves. It is dwarf-growing with pale scales and *D. carthusiana*-like growing points where the runners form new crowns. In every other respect it looks like small-growing *D. austriaca* and I cannot convince our botanist friends that it is anything other than this speces — we, however, have our own name for it! The other ferns seen here were *A. filix-femina, B. spicant, D. filix-mas, D. pseudomas, D. X tavelii, P. interjectum, P. aculeatum* and *P. aquilinum.* We did not linger here for very long and once again the wooded and ferny ravine valley leading down to Hayburn Wyke drew us irresistibly to explore its reaches further inland, which we found to be even more rich in ferns growing luxuriantly to a very large size in a jungle-like habitat, lush, wet and shaded. Magnificent specimens of *D. X tavelii* flourished alongside equally fine specimens of their parents. *P. setiferum* draped the banks of the stream with arching fronds over 5 feet long and wide in proportion and there was a large colony of the variety 'Tripinnatum' with its characteristic upright habit and fronds equally long. Many of these plants had a dark glossiness which suggested *P. aculeatum*, but the dark environment may have something to do with it; a small plant was collected for growing on at home to see how it develops.

On Thursday we went further afield to the eastern edge of Pickering Forest where we hunted along the cliffs and Pifelhead Wood sloping steeply down to the Pickering Beck in its upper reaches. It was hard going on a very steep and in places very wet slope as far as Talbot Wood where we turned downhill to come back along the railway. We recorded 15 species; on the cliffs *A. trichomanes* was common, and on the higher slopes *A. filix-femina* and *B. spicant* were equally so, one immature plant of *P. aculeatum* was seen, and a few plants of *Cystopteris fragilis* were found on rocks along a stream falling down to the beck, while on open hillside *O. limbosperma* was common. *A. scolopendrium* was scarce and only a very small number of plants was noted and this applied also to *P. vulgare.* The common ferns were *D. filix-mas* and *D. pseudomas,* and of course *P. aquilinum.* On boggy ground higher up at the base of the cliffs a few plants of *E. sylvaticum* and *E. telmateia* were found and on the railway banks *E. arvense* was abundant and an extensive colony of *E. palustre* stretched for some distance, appearing even between the railway tracks.

On our last day, Friday, we visited the Scarborough Natural History Museum in the morning; the chief interest here was the fossil plants, including ferns, but they had none much if any better than the ones we had ourselves found. In the afternoon we were back in the Hackness area and explored Low Dale in the Broxa Forest, which was very poor fernwise and most of the interest lay in the lane leading up High Dale where we parked the cars. Here were abundant and large-growing *D. filix-mas* and *D. pseudomas* along with *D. X tavelii.* On the wooded slopes of Low Dale the common fern was again *D. austriaca,* along with its creeping form. Higher up, an old overgrown quarry contained no ferns. Altogether, 8 species were recorded, *A. filix-femina, B. spicant, D. austriaca, D. filix-mas, D. pseudomas, D. X tavelii, P. aquilinum* and *E. arvense.* To the south in Troutsdale, hunting was even more disappointing, a few of the common species being seen, but they did include *O. limbosperma.* Further to the south at Cockmoor, it was even more disappointing, with only a very few ferns, and at this point where the Excursion ended on a very low note the rain began to fall!

It was an interesting Excursion in that it was planned more as an exercise to find out what ferns grew in the area and we had no real hopes of finding exciting fern country. It proved to be much better than we expected; we found some places which compare very favourably with the more outstanding fern areas, and some useful work was done in filling in several blanks in the distribution maps for this part of the country. It was exciting to find fossils of ferns which flourished in the very dim past in Carboniferous times, and for most of us this was the high-light of the Excursion. No fern varieties at all were collected.

NEW RECORDS

Compiled by J W Dyce

The following list of species found at meetings during the year are new to their 10 km squares in the *Atlas of the British Flora,* or appear as pre-1930 records. Numbers refer to localities. (Bold figures indicate pre-1930).

Asplenium adiantum-nigrum – 6
A. ceterach – **1, 3, 5.**
A. ruta-muraria – 3, 4, 23.
A. trichomanes – 4, 5, 6, 28.
Athyrium filix-femina – 2, 3, 7, 9, 19, 20, 21, 22, 24, 25, 27.
Blechnum spicant – 27.
Cystopteris fragilis – **11,** 15.
Dryopteris aemula – 29.
D. austriaca – 1, 2, 3, 9, 10, 22, 24, 25.
D. carthusiana – **2,** 16.
D. oreades – 12.
D. pseudomas – 1, 2, 7, 8, 9, 13, 14, 17, 20, 21, 22, 24, 25, 27.
D. X tavelii – 20, 22, 24, 25, 29.
Equisetum arvense – 9.
E. hyemale – 26.
E. palustre – 7, **8,** 9.
E. telmateia – 7.
Ophioglossum vulgatum – 9.
Oreopteris limbosperma – 19, 20, 21, 27.
Osmunda regalis – 13.
Polypodium interjectum – 13, 14, 22, 24, 29.
P. vulgare – 2, 3, 24.
Polystichum aculeatum – 6, 7, 18, 22, 24.
P. setiferum – 23, 24, 29.
P. X bicknellii – 10.

The Cotswold Hills. V.C.33 East Gloucestershire.		Nat. Grid ref.	
1.	Woodbridge	42/01	0314
2.	Yanworth, Chedworth Woods		0612/3,0712/3
3.	Yanworth, Chedworth Woods, Roman Temple		0613
4.	Old Quarry on A424	42/12	1728
5.	Stow-on-the-Wold		1925
6.	Blockley	42/13	1634/5
7.	Bourton Woods		1633
8.	The Warren		1430
9.	Bradwell Hill, valley to south of	42/22	2026

The Lake District. V.C.69 Westmorland and North Lancashire

10.	Humphrey Head	34/37	3973
11.	Eggerslack Wood, open fell above	34/47	4079
12.	Whitbarrow	34/48	4087/8

Llangollen. V.C.50 Denbighshire.

13.	Llangollen, Shropshire Union Canal	33/24	2142, 2242
14.	Llangollen, River Dee		2042/3
15.	Offa's Dyke		2245/6/7
16.	Llay Bog	33/35	3255
17.	Cefn-y-Bedd		3156

Scarborough area. V.C.62 North-east Yorkshire

18.	Pifelhead Wood	44/89	8394, 8494
19.	Cockmoor	44/98	9186
20.	Raincliffe Woods		9988
21.	Troutsdale Moor		9188
22.	Broxa Forest, crossroads on eastern edge	44/99	9793
23.	Hackness		9690, 9790
24.	Hackness Woods		9790/1
25.	Low Dale		9591
26.	Mallyan Spout	45/80	8200/01
27.	North Rowbrow Wood	54/08	0088
28.	Scarborough		0487
29.	Hayburn Wyke	54/09	0096/7

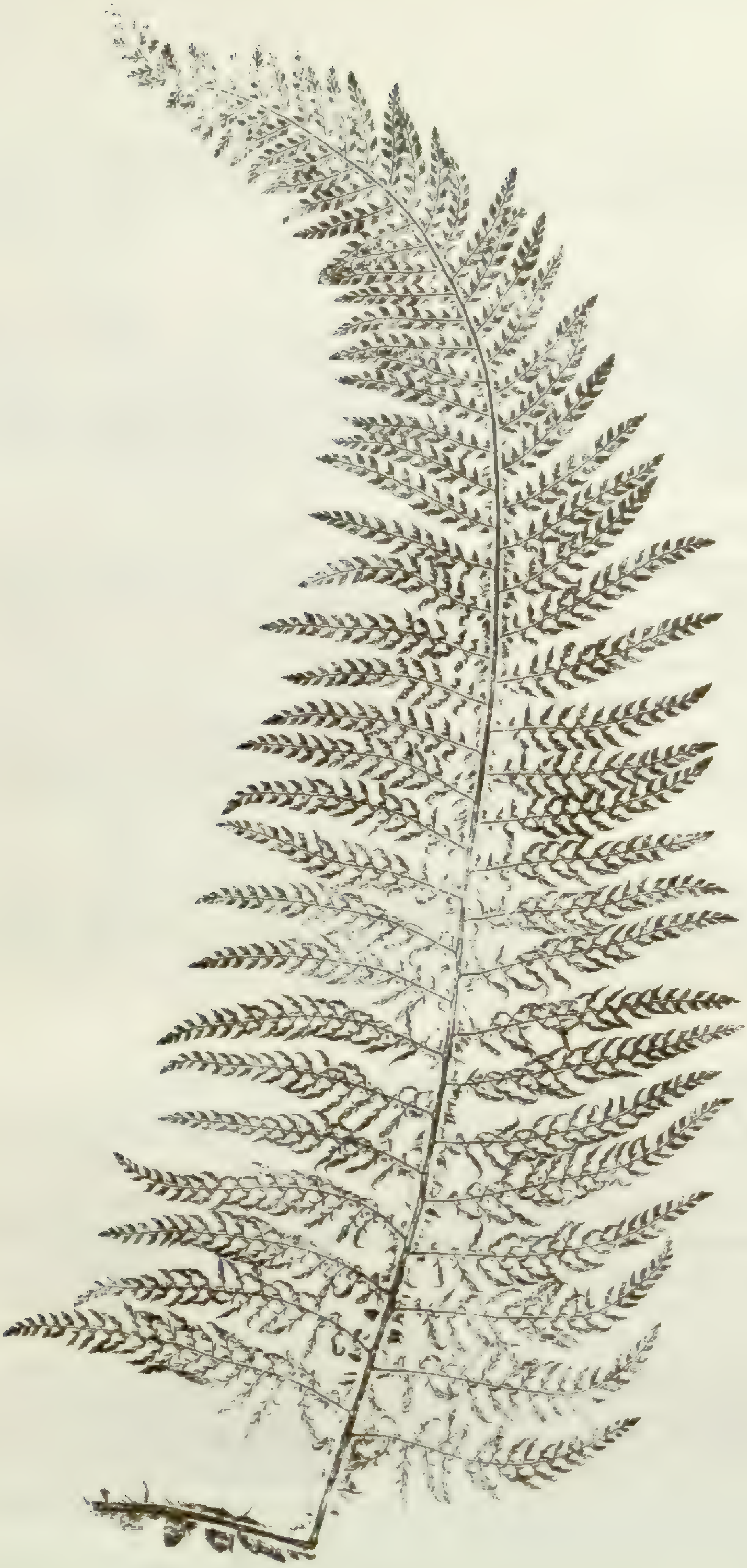
URBAN STREET MAPS FOR GRID REFERENCES

A R Busby

To those of us who are involved in recording plant distribution in urban areas, may I draw their attention to a very useful series of street maps which are prepared direct from the Ordnance Survey gridded maps. Published by Geographia Ltd, 63 Fleet Street, London, the West Midland area is covered by one entitled *Birmingham and West Midlands Street by Street* which also includes Coventry and Nuneaton; it costs 85p. It has the added advantage of numbered grid lines on each page, giving very quick and accurate grid references in complicated urban streets, yards and passageways.

Other areas covered by the series are –

Bristol and Bath and Weston-super-Mare
Edinburgh
Glasgow
Leeds with Pudsey and Horsforth
Liverpool
London
Manchester
Sheffield and Rotherham
Stoke-on-Trent and Newcastle-under-Lyme
Tyneside, including Gateshead, South Shields and Sunderland



Polystichum setiferum 'Divisilobum Wollaston'.

POLYSTICHUM SETIFERUM 'DIVISILOBUM WOLLASTON'

J W Dyce

In the pre-Gazette Reports published annually by our Society in its early days from 1894 to 1905, a paper by Dr F W Stansfield in the 1897 issue states – "In 1852 Wollaston found a grand acutilobe *angulare* which was first known as *Polystichum angulare proliferum Wollastonii.* This was memorable, not only as a good thing in itself, but still more as being the forerunner of a bewildering multitude of lovely forms of *angulare* with divided lobes, some classified as acutilobes, multilobes, divisilobes, etc., but for long lumped together as *proliferums".* Wollaston regarded the fern as a true acutilobe with elongated, deltate and tripinnate fronds, acute pinnules, and in its best character with only two pairs of bulbils seated in the axils of the lowest pair of pinnae.

We find W H Phillips, in the 1898 Report, writing – "No British fern exceeds this in beauty, and probably none has figured so prominently in exhibitions; it is not to be wondered at, therefore, that it should have taken more than one person to find it. Mr Wollaston relates that he and the late Rev W Gardiner, then Curate of Ottery St Mary, during a ramble in that neighbourhood were brought suddenly, by a bend in the lane, face to face with it and were at the same moment (it was then a large plant and in true character) transfixed with astonishment. Mr Wollaston was, however, the first to recover his presence of mind, and the plant will ever deservedly bear the name of the first of British fern hunters".

Wollaston called the fern first of all a *proliferum,* but later when the large number of the finely divided polystichum varieties all gathered together under this name made the section unwieldy and confused, he divided them into three classes – *multilobum, acutilobum* and *divisilobum,* and placed his find among the acutilobes. Unfortunately he chose a very artificial dividing line between *acutilobum* and *divisilobum* which ever since has made it very difficult to allocate many varieties to their proper class. A more sensible division places the fern under discussion into *divisilobum,* so its more accurate name is *P. setiferum* 'Divisilobum Wollaston'.

Although the variety was strong-growing and unlikely to die out prematurely, still the fact remains that it disappeared as a named fern in the inter-war years when fern-interest was at a low ebb. This disappearance was greatly helped by the fact that many other varieties closely resemble it so it is probably still growing in many gardens unrecognised. Many times over the last 10 to 15 years plants have been shown to me, which at first sight raised my hopes that this fern for which I have been searching so long, had been refound. None of them quite tallied with the Jones Nature Print made from a frond of the original plant (see illustration), but this year I received a frond from our North of England member, John Barnett, who spends a lot of his time poking into odd corners in old gardens and in the wild in his search for fern varieties. He found it in the woods at Witherslack on the west side of Whitbarrow in the Lake District. Comparison with my "yardstick" convinced me that at long last we had recovered 'Wollaston's Proliferum', but how and why did it come to be growing in the wild in such a place ?

It is known that Wollaston was an active fern hunter in the Lake District and an associate of the well-known fern-men there before and after they founded our Society in 1891, so this fern must have been in the collections of many of them as well as in other Lakeland gardens. John Barnett's find could possibly have originated from a wind-blown spore which had bred true to the parent, or it could be an actual plant of the variety dumped from some garden in these latter days when ferns have lost their appeal to the ordinary individual – and so it now appears to be! A recent letter from John states he has been back to study the habitat more closely and has come to the conclusion that his find was the sole survivor of a barrowload of plants dumped in the woods from some garden in the vicinity.

Although there are many very similar varieties which do, as I have already stated, closely resemble 'Wollaston's Proliferum', the true variety has several minor distinguishing features which are not present in any of the others I have examined, and I feel that we can with confidence claim to have refound this magnificent variety.

STRONTIAN – GEOLOGY AND FERNS

J W Dyce

After the Lake District meeting this summer I joined our Gazette Editor, Dr Chris Page, with his family for a week in the west of Scotland, staying at Strontian on Loch Sunart where the ferns claimed a lot of our attention.

One small area in the hills a few miles to the north on the road leading to Loch Shiel was of particular interest. It was an old mining area with many disused mine-shafts and spoil heaps which are beginning to lose their raw appearance and to merge into the landscape. Curiosity led us to stop the car and explore these scree-like heaps which, we noted, contained a proportion of strontian granite as well as a large quantity of a much softer rock-type thrown up from the deep mines, which appeared totally different from the rocks visible at the surface in the surrounding region. This once-deep rock had been spread in low heaps over the original moorland, and growing up through the stones were several of the lime-loving ferns. In this rather bleak part of moorland hillside ferns were elsewhere conspicuous by their absence so it was with surprise that we spotted the first *Cystopteris fragilis*. Investigating further, much more was found, along with abundant *Asplenium trichomanes, A. viride* and *Polypodium interjectum,* all growing happily on the stony surfaces and among rocks and in crevices. Some of the mine excavations were deep open chasms into which it was impossible to descend, and on their walls several ferns were growing vigorously – *Athyrium filix-femina, Dryopteris austriaca, D. filix-mas* and *D. pseudomas*. Down below on the bottoms of the chasms these species were growing even more vigorously and we particularly admired the magnificent spreading colonies of *D. pseudomas*. One horsetail, *Equisetum arvense,* was seen in small quantity, and a little lower down the hill it appeared again along with some good colonies of *E. palustre* in damp patches where the water emerged from the mine heaps.

The pleasing surprise was to find ferns here at all in a rather forbidding place, but to find so many of them all growing vigorously and happily made our day a memorable one.

Gardens to visit, an annual booklet, published by the Gardeners' Sunday Organisation, lists gardens opened to the public. Obtainable from bookshops for 20p, or 30p post free, from the Organiser, Mrs K Collett, White Witches, Claygate Road, Dorking, Surrey.

FERN FIELD MEETINGS IN AUSTRALIA IN 1976

Ray Best

On Sunday 25 July 1976 members of the Fern Study Group of the Society for growing Australian Plants visited Lawson in the Blue Mountains to study ferns in their natural habitats. Lawson was called after one of the three explorers who first made a crossing of the mountains, Blaxland, Wentworth and Lawson, all of whom have mountain towns named after them. Quite a sizeable party met and we were fortunate to have with us Bob Covney from the Sydney Herbarium to assist with identification.

The sunken valleys of these sandstone mountains, abounding in fascinating forms of eroded sandstone and many waterfalls and cascades, are rich in fern material. We proceeded to the falls area and on the ridge top where the creek forms the first cascade, was a mass of several square yards of *Gleichenia dicarpa* (Wiry Coral Fern) which had competely taken over the area excluding all other growth. As the party descended, several plants of *G. microphylla* were observed, finer than *dicarpa* and having delicate pinnae not pouched as in the other species. Also we came upon several specimens of *Lindsaea microphylla* and *L. linearis* amongst the moist rock outcrops. Both these species are difficult in cultivation but thrive in their own selected positions. *Hymenophyllum cupressiforme* was found on large moss-covered sandstone boulders about midway between the valley floor and the ridge. Bob Covney was able to show us a beautiful light-green specimen of Sticherus as yet unnamed, numerous plants of *Blechnum cartilagenium, B. nudum,* a few *B. patersonii* and *B. gregsonii.* Lower in the valley beneath the waterfalls were many large specimens of *Todea barbara* most of which seemed devoid of spores; here also were large patches of *Leptopteris fraseri.* These last two ferns are, I understand, the only members of the osmunda family in Australia, and both are evergreen unlike some overseas species which are deciduous. Most of the floor of the valley was occupied by *T. barbara,* to the exclusion of the other tree ferns which grow in this general area, such as *Cyathea australis, C. cooperi* and *Dicksonia antarctica*; had time permitted I am sure we would have found a number of these also.

Our next trip on the 28 November was to Mount Wilson, again in the Blue Mountain area. We were fortunate again on this occasion as one of our members, Keith Ingram, who lives at Mount Tomah in the area allowed us to inspect his herbarium and visit his glasshouse. He is an authority on the ferns from this section of the mountains and we obtained much useful information from this visit. On his property are many huge specimens of *C. australis* some 30 feet in height and of great age, also some beautiful specimens of *D. antarctica* which abounds in this area. From Mount Tomah we travelled to Mount Wilson, and on the plateau itself some of the early pioneers planted both sides of the main road with English deciduous trees to create an avenue which is unbelievably beautiful in both summer and autumn. The side of this ridge is one of the richest fern areas on the mountains with masses of tree ferns and most other species, including many beautiful specimens of *Asplenium flaccidum* growing on aged coachwood trees along with several mosses. Bob Covney found a fine plant of *Tmesipteris billardieri* on a tree fern trunk, also *Pyrrosia rupestris* and *P. longifolia.* Both *Hymenophyllum cupressiforme* and *H. australe* are found here and *Lastreopsis shepherdii* in massive colonies, also *A. bulbiferum.* On the way back we visited another section of the Blue Mountains National Park which includes a portion of the Grose River Valley. The fern gully here was very attractive and carried many species already described, with the possible exception of some plants of *Blechnum articulatum* and masses of *Leptopteris fraseri.*

All the members present at these outings had a most enjoyable time and are looking forward to others in the future. It has been suggested by the Central Group that isolated country members should get together in their local areas and make trips also. Distance precludes many of them from participation in the Sydney region arrangements.

Ferns in a Queensland garden.

Tree Ferns. Kangaroo Valley, New South Wales.

THOUGHTS ON AUSTRALIAN FERNS

P G Coke

Having been lucky enough to be given a two months tour in Australia and had the pleasure of meeting some of our members there, it occurs to me that perhaps British members may be interested in some rather random and entirely unscientific thoughts on ferns in that country.

My wife and I were out there in February and March of this year, their late summer. The object of the trip was not ferns but to see as much of Australia as we could in the time, and this we did by travelling about 6000 miles in New South Wales and South Queensland, conducted by Mary's son, Mike. The ferns were just an added bonus to a wonderful holiday. Somehow I had never thought of Australia as a great country for ferns but how wrong I was ! I believe, in fact, that they have more than New Zealand.

I thought it would be nice to meet some of our members there, so I armed myself with a list of some who might be accessible. I also needed help as I was completely ignorant about Australian ferns and hoped that I might be able to get some assistance and advice. I was lucky right from the start as my first call was to Rob and Gleness Lamarch. They invited us out to their Glenrob Nursery at Wyee Point, north of Sydney and made us very welcome. They also kindly invited another member, Ray Best and his wife Marie, to meet us. Ray's first words were that any friend of Jimmy Dyce was a friend of his although, unfortunately, they have never met. I was able to visit Ray and Marie later.

Glenrob is astonishing and unlike anything I have seen in England. They had at that time only been there for 12 months but they already had two large fern houses full of superbly grown ferns in pots and hanging baskets and were making two more such houses. They were concentrating first on adiantums and nephrolepis of which they had some really beautiful varieties, but they also had a wide range of other interesting ferns coming on. I have never seen better ferns in cultivation and will say something about cultivation methods later.

I badly needed a book on Australian ferns and there I was introduced to *Australian Ferns and Fern Allies* by Jones and Clemesha. Although only published in 1976 it was already out of print and I was very lucky to be able to get a copy. It is the best fern book that I know; it covers a vast subject (312 species), contains a mass of information which is easily extracted, and is beautifully illustrated by drawings and colour photographs. I would have been lost without it.

Before starting on our tour I visited Sydney Botanic Gardens. I hope that I am not maligning them but I found all the botanic gardens I visited disappointing. Of course I was always in a hurry and may have missed some things. They are lovely gardens but have really very few ferns considering the wealth of these plants in the country. Sydney has one beautiful circular glasshouse with an ascending footway; Canberra has a spectacular rain forest gully; Brisbane I had great hopes of as the capital of the most prolific fern state but they did not have very much.

One difficulty I had was that we were travelling for most of most days so my fern hunting was largely confined to rapid excursions during roadside halts, and to early morning and late evening walks. This was in no way due to malice on the part of Mary and Mike but because distances are so great and there was always so much more that we all wanted to see. But the result is that some of my identifications are suspect and I am certainly not qualified to give more than a general impression. That impression was of the astonishing number, range and diversity of ferns – diversity of types and size, of climatic, altitude and water requirements, of growth habits and even of colour.

My first find was in the Snowy Mountains (highest point in Australia Mt. Kosciusko 7300 feet) at the top of a ski-lift. This was *Polystichum proliferum* at 6000 feet plus, and snow covered throughout the winter. It proliferates by plantlets at the ends of its fronds and forms large colonies. On the way down I found the only other polystichum I saw, *P. australiense.* It was nice there to find an old friend, *Blechnum penna-marinum,* on its own ground. The blechnums are very numerous; 18 are listed and I cannot say that I ever got them sorted out. One, at times, annoying feature of my fern book is that it aims to list against each species the other species with which it can be confused, and all too often only the word "Nil" appears, which can be exasperating to the inexpert when faced with two or three almost identical kinds. This was really because I did not have time to examine the rhizomes and it seems difficult at that time of the year with many of the ferns to find fertile fronds. I had similar trouble with the bracken-type ferns but this was in no way due to the book. The common bracken, *Pteridium esculentum,* is easily recognised as is the false bracken, *Culcita dubia*; the latter is almost as common and its pale green fronds are very attractive in the mass. It was among 5 hypolepis, 8 lastreopsis, one dennstaedtia etc. that I got bogged down – there were just too many !

In the gullies lower down and around Kangaroo Valley we found the greatest variety and the most spectacular stands of tree ferns, chiefly *Cyathea australis* and *Dicksonia antarctica.* The latter is said to grow to 50 feet high with 6 feet diameter trunks but we saw only comparative striplings of up to 20 feet. Another common fern was the short but massive *Todea barbara* with fronds up to 6 feet long and numerous crowns.

I can only mention a few which were of special interest. *Gleichenia dicarpa* (pouched coral fern) was an entirely new type for me; it is very handsome and forms dense tangles covering large areas. Another very fine fern is *Adiantum formosum* (giant maidenhair) which grows to about 4 feet. Two ferns which seem to go out of their way to deceive are *Microsorium diversifolium* and *M. scandens* which have very variable fronds, some entire and others pinnatifid. They are both common climbing ferns and form mats on trees, including tree ferns, and on rocks. At the bottom of the size scale is *Asplenium flabellifolium* (necklace fern), a most attractive one which also roots at the frond tips, as does *A. attenuatum.*

I found many of the same ferns in the Blue Mountains and at Dural, just outside Sydney, where I had more time to look around. Other types new to me at Dural were *Sticherus flabellatus* (umbrella fern) and the very delicate *Lindsaea microphylla* (lacy wedge fern). A rather unexpected find was *Asplenium trichomanes ssp. quadrivalens.*

On the subject of the water requirements of ferns, one of our stops on the way to Queensland was at a farm near Inverell. There I could only find two cheilanthes, *C. sieberi* (mulga fern) and *C. lasiophylla* (woolly cloak fern). Both were growing in pure sand or on rocks, and in many cases in full sun. *C. lasiophylla* is particularly drought resistant and extends into barren inland areas; it is a "resurrection" fern and like our *Asplenium ceterach* can shrivel completely and revive when it rains.

Leaving out the rain forest for the present, at the other end of the water scale are the marsh and water ferns. Of the former, in what must be brackish marshes near the sea on Bribie Island, I found *Blechnum indicum* (swamp water fern), a very tough species which looks like a young palm tree, and *Lindsaea ensifolia.* Of the true water ferns *Salvinia auriculata* must be the black sheep of the fern family. An article in *The Australian Country Magazine* claimed that it was a worse menace than the water hyacinth; that under favourable circumstances it can double its size in 4 days and that one plant can cover 600 acres in a season. Certainly it looks solid enough to walk over. It was originally imported from South America as a fish food – Australia has had its troubles with imported flora and fauna. The only other water fern I saw – and in captivity – was a marsilea of which there are several. This remarkable fern has a frond like a clover leaf.

Now for the rain forest – what can one say about it? It has everything for the pteridologist. My memory of it is of enormous trees with almost white bark playing host to frequently six or more ferns. There would be platyceriums (staghorns and elkhorns) and *Asplenium nidus* (crow's or bird's nest) high up where the branches start. These epiphytes collect litter in their spreading nest leaves which die annually and curl inwards pressing the litter against the previous year's leaves and making humus. This humus feeds the fern itself and frequently others as well, and it is not unusual to see growing from them such ferns as *Pyrrosia confluens* (robber fern), or *Rumohra adiantiformis,* or a davallia. Climbing up the trunk might be *Stenochlaena palustris* a very pretty climber, a microsorium, or again one or more of several species. Any rocks or fallen trees might be used by ferns such as *Pyrrosia rupestris* (rock felt) and if there was any more room on the ground it would be filled by some of the 16 species of ground ferns already mentioned, or some of 6 species of adiantum.

Mike took us to two guest houses in the rain forest, O'Reilly's in the Lamington National Park and Barrington House below Barrington Heights. On the way to the former we were able to visit another member, Charlie Haden and his wife Joan. As usual we were warmly welcomed and shown his collection. He is a wholesale nurseryman and has the advantage of living in a perfect climate actually in the rain forest at Mt. Tamborine. His collection was the biggest; he seems to have world-wide contacts and ferns from many countries. He wants some British spores which I will try to supply in due course. Sadly we had only two hours to spare there.

One does not usually associate ferns with much colour range – they are green, but I had to revise this view to some extent in Australia. In many cases the young fronds are red, pink or chestnut; to name a few *Adiantum hispidulum* (rough maidenhair), *Doodia aspera* (prickly rasp fern) and several of the blechnums. I well recall a mixed patch of *D. aspera* and *B. cartilagineum* (gristle fern) with a lot of young fronds and the effect was quite beautiful. Then there is *Pityrogramma chrysophylla* (gold fern) which I first found at Mt. Glorious near Brisbane. The undersides of the mature fronds and the whole of the croziers are covered with a bright gold powder. This is also an immigrant, from South America, and appears to be widespread in Queensland.

Earlier I mentioned my morning and evening fern hunts. Of course, we often lodged in towns and there too these walks were a real pleasure. The wide tree-lined streets and the bright bungalow gardens were always worth seeing. If I had to choose any for particular attention I would remember Canberra for trees and Armidale for flowers, but this would be unfair to many beautiful towns. So much depended on where in the town we lodged and, in the case of trees, on the season. The trees in Grafton, Jacaranda City were not in flower but I would love to be there when they are. Much more use is made of ferns in gardens than in Britain, especially in Queensland. These are usually tree ferns which can be bought by the foot or platyceriums. Very effective use is made of ferns climbing the rough trunks of palm trees.

All things come to an end — in this case, too quickly, and we had to go back to Sydney and home. We never got to the best fern areas in North Queensland; it had never been our intention to do so but in any case there was very serious flooding in the state and there is a limit to how far one can go. On the return journey we were able to pay another visit to Glenrob. I had hoped to be able to bring some ferns home and had obtained an import permit from the Ministry of Agriculture but, unfortunately, this was limited to wild finds. The Government of Australia had countered this by very wisely making what appeared to be almost all fern growing areas into national parks where the collection of plants is forbidden. Rob very generously offered me anything I could take and it really hurt me to have to refuse. In spite of everything, I did manage to bring back quite a selection which seems to be reasonably resigned to living in England, and I also have a lot of spores germinating — I hope.

I was also able to spend a day with Ray and Marie and to see his fine collection. Ray does a great deal for ferns. His garden was just recovering from an invasion by a television crew for the second of two broadcasts he has done, and he had also recently had a visit from 70 girls from Cheltenham Girls High School. He is a superb artist and is, I am pleased to say, writing a book which he is illustrating himself. He showed me some of the paintings to be used; they are beautifully done and bring out very clearly the distinguishing features of the plants.

They took us to see yet another member, Bob Sinclair and his son Warwick. They had recently turned their nursery over to ferns from, I think, orchids. They already had a fine display — mainly of adiantums, but they too were expanding and had some beautiful ferns coming on. The young ones were in a polythene tunnel painted on one side to give shade; the floor was covered with black polythene to keep down weeds and on it was a layer of furnace ash which, under the benches, was literally covered with a mat of adiantum sporelings — many obviously good ones. It makes me green with envy when I think how I have to cherish my sporelings! I suppose that some fertiliser dripped through and fed them, but fertiliser is said to be fatal to spores ?

This brings me on to cultivation and the ferns were so good that I took particular note. They do, of course, have climatic advantages — all that is needed is shade and a windbreak, and if you want shade you plant a gum tree. They also have a much longer growing season than we have. Apart from this, the only difference from our methods seemed to be greater use of fertiliser than is usually recommended. This may be to compensate for the faster rate of growth. Two successful growing mixtures are –

1. One part of sandy loam, one of polystyrene foam, two of sieved peat and one or two of sand. To this is added fertiliser composed of two parts of blood and bone meal, two of superphosphates and a half part of potassium sulphate, applied at the rate of one teaspoon per 8-inch pot. An alternative is a tablespoon of seaweed fertiliser to 2½ gallons of water.
2. One part each of coarse sand, very light soil and chicken manure on a wood fibre base. I was warned that chemicals used with chickens can be dangerous to ferns.

Interest in ferns in Australia is strong and growing, and so it should be. They have everything going for them. Apart from the climate, no one in the east side of Australia is far, by their standards, from wonderful fern country; they seem to have unlimited water for irrigation, which surprised me; they can grow shade trees in about five years; and they have very fine nurseries with a wide selection of really good ferns. In addition, Australian ferns must surely be equal to any in the world.

I said at the beginning that the ferns were just a bonus, and that is what they were. There were so many other things which we did and saw. For me the bonus was obvious, but what of my companions? Sometimes I got the impression that their enthusiasm for ferns was flagging but they bore it with fortitude, and I hope that there was something of a bonus for them too. We had experiences that we might not have had if they had not been kind enough to take me to ferny places – experiences like trying to eat lunch at O'Reilly's under the assault of a hoard of crimson sandwich-eating rosellas *(Platycercus elegans)*; or feeding the possums which come down from the trees at night; or meeting the friendly wild kangaroos at Barrington House. We met very nice people we would not otherwise have met, and we certainly saw parts of the beautiful Australian countryside which we would otherwise have missed.

I hope that if any of the Australian members of our Society come to England they will let us repay some of their kindness.

FERN INTEREST IN FRANCE

J W Dyce

While Martin Rickard was over in the south-east of France this year he was invited by the local natural history society in the nearby town of Belley to take part in their annual exhibition by showing a collection of the ferns to be found in this part of the country. The exhibition coincided with my visit to him and a very comprehensive collection of plants was collected, potted up and transported to the show. Set up on the benches, each pot accompanied by an information card, it attracted a lot of very interested attention and, even while we were staging, school children and others were crowding around us to look.

Martin was highly complimented by the organisers and others for his endeavours and we were greatly amused by the fulsome and flowery tribute paid to him and to our country, with special reference to the Queen in this Her Jubilee Year, by the reporter covering the show for one of the local papers. A rather simplified translation merits reproduction here –

"The highlight of this exhibition is without doubt at an international level. In effect, a subject of Her Gracious Majesty, M. Rickard, friend of our small province where he stays regularly, has offered his help. This Briton, a lover of nature, has a passion; he interests himself with plant life and the ferns which he collects. Also, this week he has been to the Massif Central to collect several dozen specimens to show at our exhibition at Belley. One would not have thought that this family was so varied. This is an exhibition under the sign of the 'Entente Cordiale'; in fact one asks oneself how in the kingdom of naturalists it could be otherwise."

NEW FERN VARIETY FINDS

J W Dyce

During the last two years very few variety finds of note were reported to me, but this year I have collected a list which is worthwhile reporting for the benefit of the variety enthusiast.

Bert Bruty and I spent a week in Reginald Kaye's nursery this summer, building up a herbarium of the fern collection and giving some help with work among the ferns. With plenty of time to study the collection at our leisure we "discovered" many very interesting plants, among them two polystichums, both very good varieties, which were sent to Reg around 1966 by a young man named Schroder who found them in the New Forest in Hampshire. One is *P. setiferum* 'Rotundatum', an excellent plant of its type with rounded and divided pinnules, and the other is *P.s.* 'Perserratum', a very lovely thing with deeply divided pinnules, all the divisions extended and elongated into fine hair-like spines. How often have we hunted in the New Forest and never come anywhere near finding such a gem as this! It is unfortunate that I did not learn of these finds at the time because more than one visit has been paid to this forest since 1966 by the Society with very little luck where varieties are concerned, and a knowledge of where these plants were found in the area might have helped us to discover other good ones.

While we were in Silverdale this year, a first-rate *P.s.* 'Divisilobum' was collected from the vicinity by Reg's son, Jeremy – a further search of the area revealed no other polystichums in the neighbourhood and we suspect that the plant resulted from a wind-blown spore from the nursery. In 1975 a very good 'Divisilobum' was found on the Isle of Man by L S Garrad and M Devereau, and this year John Barnett made what I consider to be a very important find in the Lake District – *P.s.* 'Wollaston's Divisilobum'. This fern is the subject of a separate article with an illustration, so I need say no more about it here. Last year while at the Ilfracombe meeting, I found a very fine *P.s.* 'Acutilobum' – it was a small plant and is still in the process of settling down but already shows some unusual setose characters which indicate that it may develop into something exceptional.

In the Lake District this year during our Meeting there, a very good and regularly crested *Dryopteris filix-mas* was found, and in the same place two plants of *Asplenium scolopendrium* 'Ramosum', both excellent. An unusual find in the same area was a scolopendrium with the sori appearing on the frond upper surfaces as well as on the lower. This is more curious than beautiful — the form has been found but rarely and was named by Lowe 'Suprasoriferum'. In a visit to the Lakes later in the year Reginald Kaye has reported finding a good crested bracken, and along with Fred Jackson he visited an *Asplenium septentrionale* colony known to us. He reports that the plants suffered very badly in the 1975 drought — many are dead and among the corpses was found the remains of a large clump of the rare hybrid *A. X alternifolium*, completely dead !

A most interesting find was made in the Black Mountains in Wales this year by a non-member of our Society, Mr E Nicholl of Monmouth, who fortunately was interested enough to send a frond to the British Museum (Natural History) with the comment that it appeared to be like *Athyrium filix-femina* 'Frizelliae nanum'. The frond was sent to me for comment, but the pinnae are not curled into rosettes as in 'Frizelliae' but are open and fan-shaped; the fronds are about 6 inches long. Matt Busby has visited the habitat with Mr Nicholl and as there were three crowns he collected two, one for me and one for himself, leaving the third undisturbed to ensure that the plant can continue to exist in its native habitat. The plant needs to be brought on in cultivation but somewhat resembles the variety 'Barnesii' depicted by Druery, which is about the same size. There were very few spores on the collected fronds and I have sown them hopefully !

Several other finds which have been made in *Asplenium scolopendrium, Athyrium filix-femina* and *Blechnum spicant* are of a minor nature and do not warrant mention here.

Ferns on bridges and walls. Writing to me in December 1976 our member, Kenneth Adlam, refers to an old bridge across the Thames and states — "the re-pointing has been carried out, and I was pleased to note that the *Adiantum capillus-veneris* growing on the west side has been carefully avoided by the pointers, and despite the summer's drought the crowns are all thriving. My late brother who lived in the parish and was a keen fern grower, put a word in to the parish council chairman before pointing commenced, and this may have resulted in the non-removal of the fern. It is a pity the same cannot be said regarding the re-pointing of the porch of Landewednack Church on the Lizard in Cornwall. *A. capillus-veneris* has been growing in the walls of this church since my earliest boyhood recollections. When down on the Lizard in October I observed that all the maidenhair fern had gone in a blaze of shining new cement pointing".

How often can this same sad story be repeated with the consequent loss of some rare plant! It behoves every active fern-man to know the plants in his area and to keep an eye on the rarer ones. More than once we have found that a word to the owner of a habitat which nurtures some uncommon or rare plant has enlisted his enthusiastic co-operation in protecting it. Even people with a minimal interest in plant life can develop a great pride of possession when they learn they are the custodians of something rare or unusual, and will guard it zealously. Of course one must exercise discretion before imparting such information — not everyone has an altruistic outlook on life. — Ed.

WARDIAN CASES AND BOTTLE GARDENS

Bottle gardens have been with us for some time now, from the small ones suitable for a single small fern to the large 10 and 15 gallon carboys which look impressive and can support quite large, varied and interesting fern populations. Wardian cases have been with us for a much longer time, and after a long spell out of favour have now become popular again. They are much more convenient than carboys which are very heavy and awkward to handle, they are more decorative and much more accessible for attention to the plants.

Our member, Alison Rutherford, is a fanatic where fern cases are concerned and we include an article from her here on the subject, written in her inimitable style! She airs several problems, and her ideas and solutions may be of help to other indoor plant growers.

The illustrations are two modern wardian cases from the range made by and marketed by our member

Edward A Joseph,
Barnhurst,
Coleshill,
Amersham, Bucks.

A HOUSEFUL OF CASES

Alison Rutherford

Am I now qualified as a case maniac? One in every room! Even the bathroom has a handlight on the floor; sanitary regulations prevent it being in the window.

The sittingroom has a Crystal Villa, described in Bulletin Vol. 1 No. 2, framed in creepers round an arch, a palm beside it and geraniums on the sill in front; the result is very Victorian. In the kitchen is another handlight, at present a hospital for an ivy plant. At one side of the window are two shelves. On one is a garden in an amber bowl with *Asplenium marinum* and *Selaginella kraussiana,* planted in 1968 – apart from once having extra compost and watering, the only other attention is a glass plate on top in very hot weather. The half-enclosed life suits the occupants. Below this is a miniature garden in a pair of clear glass hemispheres with flattened bases set one on top of the other. This has been doing well for about two years and apart from a slight "earthquake" last summer removing unwanted *Dryopteris austriaca* sporelings, it has needed only occasional pruning. It contains *S. kraussiana* and its variety 'Aurea'; two kinds of leafy liverwort, one self-sown; a sea spleenwort sporeling and various spontaneous mosses; *Hedera helix* 'Russelliana', an upright slow grower and 'Greenfeather', a dainty miniature. Prothalli are now appearing on the sandstone. Two furry grey, white-tipped protuberances have broken the surface, probably fungi, and one day one of those red and fawn banded earthworms glided past along the inside of the glass. It seems to me no bad thing to use a "living" compost where weeding is possible. You may get the odd slug but it can be caught at night, and you will get worms, surely beneficial – if they are unhappy they can be removed.

Who would not like a window-greenhouse? Finally I found someone willing to make one. Based on the drawing in Andrew Meikle's *Town and Country Window Gardening* (circa 1876) it is fitted over the lower sash outside the kitchen by two very strong brackets sufficient to bear the weight of a heavy person. There is no way to enter it except past the kitchen taps – this is a matter of cost, not taste. It is 24 inches front to back, 41¾ inches across and 41 inches high; the steel frame was hot-dipped then painted with Galvafroid and white Humbrol enamel. Growth with the overhead lighting is remarkable, and the washer-up's view cheering. North-facing, in our northern latitude it requires shading in summer evenings. An idea from Hibberd was practical and attractive – a fine-leaved ivy, *Hedera helix* 'Caenwoodiana', was trained back and forth along the inside of the roof. If you do this, have hooks for copper wires or fine bars incorporated in the design. I had some difficulty making supports stay in place. *Polypodium azoricum* and a davallia are thriving and mosses are now appearing. It has slight permanent ventilation between the base of the sloping roof and the upright front panes and in very cold weather I block this with cloth; there are plenty of drainage holes in the earthbox. It seems that Glenny was right in *Every Man his own Gardener* (1860 edition) when he said that some form of continuous airing should be arranged, and lack of this had caused people to become disenchanted with case culture in his day.

A problem, not much discussed, is the siting of the case. Everywhere I have lived since 1962 has been typical of houses here – draughty with south-facing rooms. I have longed for a west, north or even east-facing sittingroom. Here, even ferns did badly at the back of the room, and even though only a gable-end faces south they either got drawn or scorched.

The solution was roller-blinds made of thin house-plant canes and string, and now in dappled shade the ferns take full sun, but tend to get greenfly.

On the landing is a case discovered in an Edinburgh antique shop by a friend in 1974; she was told it was an aquarium, but felt it was a case — both ideas are right . In an old book found later is an illustration of just such a parlour embellishment — rectangular with a sloping roof, hartstongues of metal at the corners, top crenellations and bun feet. I tried it as a combination case, making a teacosy-shaped wire-netting container filled with sphagnum and compost and planting *Trichomanes speciosum* over it; this was raised above the water level in the case on jamjar stilts which were weighted with gravel. How the Victorians kept the glass clear we'll never know! Even by the stove in the stillest part of the house out of direct sunlight and draughts, and later with the water drained, it still fugged up.

In the bedroom is a modern case containing a rocky landscape — low hills and a valley of red sandstone and conglomerate — the plants are mostly aspleniums. Again there is a south-facing window, but net curtains work wonders filtering the sunlight. Anyone obliged to use such a window should try to have castors under the case, as the plants turn to the light. Blackfly has been troublesome, originating from some unhealthy plants. There seems to be only one safe spray for ferns, Synchemicals House Plant Pest Killer. If your plants are potted they can be dunked in warm water with a mild liquid detergent and quickly rinsed.

What a time to be alive! Case revivals abound. Two makers were featured in Greenfingers magazine recently and there are Teddy Joseph's elegant brass and lead models (see illustrations) — and I thought I had been born too late !

TALK ON FERNS BY REGINALD KAYE

A big audience gathered in the lecture hall at the Royal Horticultural Society's headquarters, Vincent Square, London on 9 August to hear Reginald Kaye talk on ferns and our Society was well represented. Mr Kaye was introduced by Mrs Frances Hay and he commenced his talk by relating briefly how he first became interested in ferns and how the interest developed over the years, resulting in his becoming our foremost expert on the variations of the British ferns and gathering together in his nursery the finest collection to be found in Britain today. His experience reaches back over 50 years and some of it has been passed on to us in his book, *Hardy Ferns*, but no one book could possibly pass on the vast accumulated knowledge of his subject which he has acquired over those years. His talk, too, with the time at his disposal, could only reveal glimpses of it. Mr Kaye has one great additional asset — he is an expert plant photographer and possesses an unrivalled collection of superb colour slides of fern varieties. A large number of these delighted us, not only with their beauty, but with their clarity which showed up so well the characters of the plants depicted. One could wish that many of our published fern books had photographs of this quality — so often they are such that it is impossible to determine with certainty the ferns they are supposed to portray.

Slides of many of our most beautiful and well-known fern varieties were shown with accompanying comments and I am sure that many people there must have realised for the first time just how magnificent some of our ferns can be. Moving around among fern-interested gardeners since, and particularly at the R.H.S. Great Autumn Show when I assisted Fibrex Nurseries on their fern stand, I have heard much favourable comment on the talk and how it has awakened a new interest in ferns in many people – recruiting of new members to our Society has also benefitted. But the time at Mr Kaye's disposal was all too short, although much better than none at all, and we are grateful to the R.H.S. for giving him this opportunity to scatter a little of his fern knowledge – we hope it will not be too long before it is repeated.

VARIATION IN *ATHYRIUM FILIX-FEMINA*. Edward Newman in his Fifth and People's Edition of his *History of British Ferns* (undated but probably about the late 1850s or 1860s) writes – "..... the pinnules are either simply toothed, or pinnatifid or pinnate, varying in different specimens; almost every two plants differ in this respect, and some cultivators, laboriously idle, have assigned Latin names to these varieties, which, like the slight differences among our fellow-creatures, are of no interest in Science, but yet are sufficient to distinguish individuals from each other, and it is argued that, as we know the members of a family not only by sight but by name, so should we be able to distinguish and name every individual plant – a theory that, while it cannot be disputed, would, if carried into practice, render the study of Natural History absolutely impossible".

SOUTHPORT FLOWER SHOW 1977

J W Dyce

Once again Southport Flower Show has come and gone and the fern competitive classes were well supported by the usual regulars with some new names appearing in the minor classes. The wetter year was reflected in the better quality of the exhibits and sun scorch was much less in evidence but did appear to some extent in the lady ferns. Again Noel Brookfield, showing under his nursery's name, John Brookfield and Son, carried off the premier award, our Society's Silver Challenge Trophy, with his fine large group of hardy ferns. His son, Rodney, came second, followed by a much inferior exhibit by W W Howarth. The winning group contained several fine varieties of *Polystichum setiferum* 'Divisilobum', and plumose and crested varieties of *Athyrium filix-femina* and scolopendriums. The second placed entry had a rather similar selection of plants but could not better the winning one. In the other classes some excellent plants were shown of the well-known varieties of scolopendrium, lady fern, male ferns and polystichums. Some outstanding ones were *Asplenium scolopendrium* 'Bolton's Crispum Nobile', *A. filix-femina* 'Clarissima', 'Percristatum' and 'Victoriae', *P. setiferum* 'Divisilobum', 'Plumoso-divisilobum', 'P.d. Iveryanum', and *P. aculeatum* 'Pulcherrimum Bevis' and 'Pulcherrimum Drueryi '. The Brookfield large pans of polypodium varieties were, as usual, superb. Two entries were rather amusing, *Jacaranda mimosifolia* and *Asparagus sprengeri,* and were deservedly disqualified as "not ferns" by the Judge who as usual was Reginald Kaye.

The prize-winners are listed below in order of winning –

Class 7 Group of hardy British ferns arranged naturally in an area not exceeding 100 square feet
J Brookfield and Son, R F Brookfield, W W Howarth
Class 8 Six hardy British ferns (dissimilar)
J Brookfield and Son, R Trippitt.
Class 9 Six greenhouse ferns (dissimilar)
J Brookfield and Son, W W Howarth.
Class 10 Three foreign ferns, hardy in Great Britain
J Brookfield and Son, R F Brookfield, W W Howarth
Class 11 Three scolopendriums
R Trippitt, J Brookfield and Son
Class 12 Three polypodiums
J Brookfield and Son, R Trippitt, R F Brookfield
Class 13 Three polystichums
R Trippitt; J Brookfield and Son, M Tordoff
Class 14 Three athyriums
J Brookfield and Son, R Trippit, R F Brookfield
Class 15 Three dryopteris
R Trippitt, J Brookfield and Son
Class 16 Three plants, gymnocarpium, phegopteris and/or thelypteris
J Brookfield and Son, R Trippitt
Class 17 Three aspleniums, excluding Asplenium scolopendrium
M Tordoff, R Trippitt
Class 18 One British fern
R Trippitt, M Tordoff, J Brookfield and Son
Class 19 One greenhouse fern
J Brookfield and Son, L Bayley, J G Fairweather

The Society had its usual Stand in the Societies' Tent, and Matt Busby organised it with efficiency, assisted by the Secretary and Bert Bruty and part time by Bob Trippitt. Several members called on us, including the President, Dr Stanley Walker, who spent some time on the Stand. Pot ferns and fronds in vases made a good show and Matt had a very good exhibit showing the propagation of ferns from the spore onwards. One caller who two years ago got a pamphlet on growing ferns from spores from us, along with a fertile frond of *Asplenium trichomanes* 'Incisum Moule', brought with him a seed tray containing the results of his sowing. They included a wide selection of very good forms of *A. trichomanes* 'Incisum' and 'Cristatum', with a mixture of other ferns which obviously resulted from stray spores of other species clinging to the frond which we gave him. For the rest of the Show we exhibited the tray on our Stand with an explanatory notice and it attracted much attention.

WORLD FERN SOCIETIES

Since our last published list in the first issue of the Bulletin in 1973 fern societies in many countries have increased in number and for the information of our members in the countries concerned we give an up-to-date list of those known to us. Without doubt there are others, for the new "Fern Craze" is extending worldwide and is now rampant in countries which were unaffected by the "Victorian Fern Craze" which swept through Britain in the latter half of the last century. We shall be glad to hear from members who can add other fern societies to our list, with, if possible, some information about them for our records. We follow up the list with a short article on the Delaware Valley Fern Society in the U.S.A., kindly supplied by the Co-President, Mrs Marilyn B Peterson, whom we are very pleased to have as a member of our Society.

AMERICAN FERN SOCIETY, c/o Smithsonian Institution, Washington, D.C., U.S.A.
CENTRAL FLORIDA FERN SOCIETY. No further information available to date.
DELAWARE VALLEY FERN SOCIETY, c/o Mrs Marilyn B Peterson, Co-President, 22 West Southampton Avenue, Philadelphia, Penn. 19118, U.S.A.
FERN STUDY GROUP of the Society for growing Australian Plants, c/o Mr S Clemesha, 18 Wesson Road, West Pennant Hills, New South Wales 2120, Australia.
JAPANESE PTERIDOLOGICAL SOCIETY, c/o Dr K Iwatsuki, Department of Botany, Faculty of Science, Kyoto University, Kyoto, Japan.
LOS ANGELES INTERNATIONAL FERN SOCIETY, 4369 Tujunga Avenue, North Hollywood, California 91604, U.S.A.
NELSON NEW ZEALAND FERN SOCIETY, c/o Miss K H Stocker, Mapua, via Nelson, New Zealand.
NIPPON FERNIST CLUB, c/o Professor Satoru Kurata, Institute of Forest Botany, Faculty of Agriculture, University of Tokyo, Yayoi-cho, Bunkyo-ku, Tokyo, Japan.
SOUTH FLORIDA FERN SOCIETY, c/o Mrs Mary G R Adams, 801 E. Ridge Village Drive, Miami, Florida 33157, U.S.A.

THE DELAWARE VALLEY FERN SOCIETY

Marilyn B Peterson, Co-President

This Society, based in the Philadelphia, Pennsylvania area, is a vital group of amateurs and professionals. Philadelphia is the horticultural centre of the north-eastern United States with many arboreta, display gardens and environmental reserves in the area. The almost 100 members of DVFS take a participatory interest in many of these institutions, on a volunteer or staff member basis. Also, as an organisation, DVFS is currently planning a design for a fern garden in a nearby conserve.

Activities of the group are varied. Winter meetings are generally lectures on fern identification, propagation and cultures. Summer meetings are spent in the field. This past year trips were taken to fern sites in Connecticut, the New Jersey Pine Barrens, the Pocono Mountains in Pennsylvania and the National Arboretum in Washington, D.C. In addition, short trips were taken to nearby arboreta and fern sites. Each year the Society participates in the Philadelphia Flower and Garden Show. This year their booth, a Victorian parlour featuring a replica of a wardian case, won an "Exceptional Exhibit" award. The members, in general, seem to be most interested in native ferns and enjoy hiking through the woods in their searches. Many do, however, grow some tropical species in their homes and/or greenhouses.

Although many DVFS members do carry membership in other fern and botanical organisations, ours is the only *local* society devoted to ferns. Most of the members are within a thirty-mile range and enjoy the fellowship of our fern forays. For those who are unable to attend a meeting or field trip, our bi-monthly bulletin carries reports of the meetings as well as other notable activities and educational articles.

Our membership is especially blessed by the active participation of noted fern authorities such as Dr Edgar T Wherry, F Gordon Foster and Longwood Gardens taxonomist Dr Donald Huttleston. The knowledge that they, and other professionals, are willing to share with our amateur fern enthusiasts gives our organisation its vital force.

REVIEWS

THE FERN DICTIONARY by Wilbur W. Olson, 1977.
Los Angeles International Fern Society. 225 x 150mm. 132 pages. Price $3.95.

The main content of this interesting book is given on its title-page, as follows: Pronunciation of fern names, Common names of ferns, Fern genera, Fern species names, Fern terms. Pronunciations and derivations are given, also etymological details. A list of families and sub-families (from Crabbe, Jermy & Mickel, 1975) is given, followed by a list of families and genera in cultivation. Several other items of grammatical detail make this book most useful and scholarly.

PLATYCERIUM — FERN FACTS by Wendy Franks.
A revised edition appeared in 1975 of this charming book which was reviewed in the Gazette 10: 118 (1970). Price $5.95.

FERNS TO KNOW AND GROW by F. Gordon Foster.
A second edition appeared in 1976 of this fine book which was reviewed in the Gazette 9: 204 (1965) and 10: 304 (1973). Price: US $4.95, Canada $5.75

J A Crabbe

NEW ZEALAND FERNS IN YOUR GARDEN by Muriel E Fisher, illustrated by L Ward. 111pp., 44 illustrations. 200 x 260 mm (x 16mm). Collins: Auckland and London, 1976. Price: NZ dollars 9.95. (Not available in this country but from Wm. Collins (NZ) Ltd, PO Box 1, Auckland, New Zealand.)

This is a very attractive book, so distinctive in its presentation that any who see it will want to own a copy. Its distinction is due, I think, to the unique drawings of Mrs L Ward which are presented with a certain degree of 'artist's licence' but also with considerable botanical accuracy. For those who do not know the New Zealand flora and who are wary of new names, these drawings are extremely helpful.

There are three general chapters: a superficial one describing the range of variation in ferns; a very interesting chapter on Making a Fernery (naturally with examples from the ever-wet areas of New Zealand but with some very useful practical hints); and a third on Growing Ferns from Spores. The Nelson and American Fern Societies are mentioned as a source of spores but Mrs Fisher has not, it seems, heard of the BPS.

The bulk of the book is given over to describing 35 species of ferns suitable for cultivation although five of these are tree ferns and treated in a separate chapter. Species are arranged in alphabetical order of genus but I found the family names brought out in bold typeface confusing as they sometimes appear twice, eg: Blechnaceae above *Blechnum* and *Doodia.* The text contains notes on habitat and cultivation requirements and often incidental data on uses by Maoris. Mrs Fisher has used the names used in H H Allan's *Flora of New Zealand* (1961) which are acceptable for the most part but I think few would now accept *Leptopteris* as a synonym of *Todea.* I am sorry the author did not give more examples of *Hymenophyllum* or *Trichomanes.* No species, only a generalised illustration of an unnamed species of the former was given; of the latter only *Trichomanes (Cardiomanes) reniforme* is illustrated.

A C Jermy

THE ORIGIN OF THE NAME OSMUNDA

A H G Alston

> The discovery among old fern papers of a poem attributed to a Edith E Warren, giving a delightful account of the naming of the Royal fern, has prompted me to repeat a paper by A H G Alston under the above heading, which appeared in the British Fern Gazette in 1938, Vol. 7 No. 5, and to follow it by the poem in question. — Ed.

The etymology of *Osmunda* is extremely obscure. Prior ('Popular Names of British Plants', page 173) says: "Osmund, Osmund Royal, or Osmund the Waterman, apparently a corruption of G. *gross mond-kraut,* greater moon-wort, representing its ancient officinal name *lunaria major.* There are other derivations of it, such as that by Beckman, from the name of some person; by Nemnich, on the authority of Houttuyn, from *os,* mouth, and *mundare,* cleanse; by others from *os,* bone, and *mundare,* cleanse. The *Waterman* would seem to be its Flemish name, *Watervarn.* The *Royal* refers, we are told by Lobel ('Kruydb.', i, p. 991), to its great and excellent virtues; but more probably to its stately habit. Osmunda regalis L."

Osmund as a proper name is said to be derived from two Saxon words, *os,* house, and *mund,* peace. The Oxford Dictionary says "of unknown origin". It seems most likely to have come from the old herbalists. The earliest reference that I have been able to find to it was in the 'Pandetarious' of Mattias Sylvaticus. Sylvaticus lived in Italy in the latter part of the fourteenth century. He says that the plant grows in "paradises and gardens", and that it was another name for the *Pirgitis* of Dioscorides. The *Pirgitis* of Dioscorides was probably *Phyllitis scolopendrium.*

In the older works the name appears in the form *Os mundi. Os mundi* appears to come from two Latin words, *os,* bone, *mundi,* genitive of *mundus,* "of the earth", meaning that the bone-like rhizome was found under the earth. The old English name was Bonewort, in use about A.D. 1000, and applied to various plants with supposed bone-healing properties, among them the Royal Fern. Osmund meant in Sweden, in early times, the unwelded small pieces of iron which were obtained by squeezing together with a sledge-hammer the lump of iron directly extracted from the ore, and cutting it with an axe into pieces, which pieces were commonly used as currency in the absence of the more precious metals.

The word appears in English works about 1280.

OSMUNDA REGALIS

Osmunda Regalis! The Monarch of Ferns!
Growing in woods and by damp mossy burns,
A fern with a story for youth or for age,
A fern with a legend on History's page.

On the banks of Loch Tyne lived Osmund the Bold.
He worked as a ferryman so we are told,
Ferrying passengers over the wave,
Osmund the Bold or Osmund the Brave.
In a cot by the shore lived his daughter and wife.
These two were the light and the joy of his life,
Brave Gerta his wife both virtuous and fair
And Hilde his young daughter with red-golden hair.

Fair Hilde loved the lake-side and fleet as a fawn
She would haste from the cot in the shimmering dawn
To watch her dear father depart o'er the blue,
Waving and waving a loving adieu.
Then humming and singing would slowly return
Through the King-fern that crowded the banks of the burn,
Their tall gallant fronds so green and so fair
With blossoms as golden as Hilde's pretty hair.

One morning, oh horrors! A fugitive band
Came hurrying to tell them there were Danes in the land,
Then onward in terror they fled them away,
But Osmund all fearful looked round in dismay.
One moment he wavered then quick as a flash
"To the boat Hilde and Gerta", and hither they dash.
He rowed to an island with Fern-Royal smothered
And bade them lie there with fern safely covered.

Then back to his cottage full fleetly he hied.
Not a glimpse of his wife or his daughter he spied
As he sped o'er the waters and back to his cot.
Not a moment too soon ere the Danes reached the spot.
They did him no hurt for they wanted his aid
To ferry them over the waters — unpaid!
But gladly he worked the whole of that day
To ferry those troops safely out of his way.

With the evening came respite and there by the shore,
His best and his dearest in safety once more,
He knelt down to thank the Good Father above,
With Hilde and Gerta who shared in his love.
In the far years that followed how often they told
Of that long day in hiding, so bleak and so cold.
Said Hilde "My good King-fern must have a new name"
And "Osmund the Royal" the King-fern became.

MEMBERSHIP LIST – Additions and amendments

New Members

ADAMS Mrs Mary G R, 801 E. Ridge Village Drive, Miami, Florida 33157, U.S.A.
AUSTWICK Eric, 4 Rippingham Road, Withington, Manchester 20.
BAINES Miss Winifred M, Roserie, Coley Lane, Little Haywood, Stafford ST18 0UP.
BATES Miss C Hilary, 1 Greenhill Cottages, Bridford, Exeter, Devon EX6 7LL.
BERKEMEIER Charles C, R.D.1, 304 Taney Drive, Taneytown, Maryland 21787, U.S.A.
BOND John D, Verderers, Wick Road, Englefield Green, Egham, Surrey.
BURROWS J E, Kirstenbosch Botanical Gardens, P.Bag X7, Claremont 7735, South Africa.
BUSHBY Mrs Marjorie, Woodstock Bower. Wray Lane, Reigate, Surrey.
CATHCART Hamish, 22 Huia Road, Titirangi, Auckland 7, New Zealand.
CENTRAL CALIFORNIA FERN PRODUCTION NURSERY, Thomas R Wash, 3535 So. Temperance Avenue, Fresno, California 93725, U.S.A.
CHIBA UNIVERSITY LIBRARY, Yayoi-cho, Chiba-sh 1, Chiba-ken, 280-Japan (Kin).
CRAWFORD R, Mayburne Cottage, Foster Street, Penrith, Cumbria CA11 7PD.
CUPP Mrs Edgar, 6925 Lois Drive, Cinti, Ohio 45239, U.S.A.
DIXON Arthur, 132 Grange Road, Hartlepool, Cleveland TS26 8JJ.
ELLIS Colin P, 39 West Square, London SE11.
ENTICKNAP Miss S A, 45 Byfleet Avenue, Basing, Basingstoke, Hants.
FEUERSTEIN Mrs S A, 2357 Thornwood Lane, Memphis, Tennessee 38138, U.S.A.
GARRETT Mrs Joy M, 2311 52nd Avenue Dr. W, Bradenton, Florida 33507, U.S.A.
GATES Peter S, 2 Glan yr Afon, Abercraf, Swansea, Glam.
GOMM Miss Alison, The Old Britannia, Buckland Common, Tring, Herts HP23 6NU.
GOODEY Norman J, Burgh Nurseries, Hasketon, near Woodbridge, Suffolk IP13 6JN.
GREEN Dr T G Allan, Biological Sciences, Waikato University, Hamilton, New Zealand.
GRIFFITH R S Ll, 60 Hillhead Street, Hillhead, Glasgow G12 8PZ.
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HANCE Mrs Elizabeth, 2731 Oak Street, Kemah, Texas 77565, U.S.A.
HASTY Dr James H, PhD, P.O.Box 63, Cary, Illinois 60013, U.S.A.
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JÄGER Wolfgang, Rabenweg 55, 5600 Wuppertal 1, West Germany.
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KOH Mrs Esta, 4 Church Street, Sunbury-on-Thames, Middlesex.
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MASON Raymond, 16 Grenville Road, Southsea, Hants PO4 0EA.
MELBOURNE UNIVERSITY, Baillieu Library, Parkville, Victoria 3052, Australia.
MONTFORD Adrian R, 10 Clermont Road, Brighton, East Sussex BN1 6SG.
MONTGOMERY Dr James D, PhD, Ichthyological Associates Inc, R.D.1, Berwick, PA. 18603, U.S.A.
MOORE Miss Jennifer, 66 Northen Grove, West Didsbury, Manchester 20.
NEW RUATON GARDEN CO. LTD., Earls Hall Drive, St John's Road, Clacton-on-Sea, Essex CO16 8BP.
PANNELL Miss Caroline M, 31 Hayling Rise, Worthing, Sussex BN13 3AL.
PETERSEN E Briand, Lillegade 27, 3700 Rønne, Denmark.
PETERSON Mrs Marilyn B, 22 West Southampton Avenue, Philadelphia, Penn. 19118, U.S.A
PIEROZYNSKI W J, 6 Rusholme Place, Rusholme, Manchester 14.
PRETORIA NATIONAL BOTANIC GARDEN, 2 Cussonia Avenue, 0002 Pretoria, South Africa.
PULLINGER Miss Ruth D, 137 Hookfield, Epsom, Surrey KT19 8JH
RANDALL Miss L, 10 Wick Lane, Englefield Green, Egham, Surrey.
RASBACH Mrs Helga, Kurklinik Glotterbad, D-7804 Glottertal, West Germany.
REEVES Robert C, 6 Manor Place, Chislehurst, Kent BR7 5QH.
REEVES Timothy, Dept of Botany and Microbiology, Arizona State University, Tempe, Arizona 85281, USA.
RIGGS Gary R, 5 Mortlake Road, Kew, Richmond, Surrey TW9.
ROBINSON Philip D, 51 Carlton Road, Walton-on-Thames, Surrey KT12 2DG.
RODDE Robert E, DDS, 2301 West First Street, Fort Myers, Florida 33901, U.S.A.
RUSH Richard J, 81 Churchbury Road, Enfield, Middlesex.
RUTT Rt Revd C R, The Bishop of St Germans, 32 Falmouth Road, Truro, Cornwall TR1 2HX.
SAYRE Lawrence R, 192 Tharp Drive, Moraga, California 94556, U.S.A.
SCHAFFER Ernest, 1 Faversham Road, Catford, London SE6.
SCOTT Michael M, BSc, Dip.Ed., Wildlife Youth Service, 4 Fountainhall Road, Edinburgh EH9 2NN.
SIMONS Dr C W R, 103 Coast Road, Warrington, E. Otago, New Zealand.
STOCKHOLMS UNIVERSITET, Botaniska Institutionen Biblioteket, S-106 91 Stockholm, Sweden.

TODD-WHITE R A, 10 Meadow Way, Liphook, Hants.
TUNNICLIFFE Mrs Susan D, 18 Octavia, Roman Hill, Bracknell, Berks RG12 4YZ.
WATKINS Lance, 14 Frick Street, Lobethal, South Australia 5241.
WINSTANLEY P R, Willowcroft, Manchester Road, Blackrod, Bolton BL6 5SW, Greater Manchester.
ZETTERLUND Henrik, Risåsgatan 6, 41307 Gothenburg, Sweden.

Changes of Address

BARNETT John, 1 Mill Cottages, Skyreholme, Appletreewick, York.
BROWNSEY P J, National Museum, Private Bag, Wellington, New Zealand.
DELENDICK Thomas J, The New York Botanical Garden, Bronx, New York 10458, U.S.A.
HILL Stephen and Mrs Teresa J, 15 Hinton Avenue, Cambridge CB1 4AR.
KORNAS Professor Dr Jan, DSc, Department of Biology, University of Maiduguri, P.M.B. 1069, Maiduguri, Nigeria.
KUNKEL Gunthur, Partido de la Fuente, a/c Lista de Correos, Coin, Malaga, Spain.
MARTIN Mrs Christine L, Bowns Motors, Othery, nr Bridgwater, Somerset.
MERRYWEATHER James W and Mrs Margaret E, 8 Howard Street, York.
MEYER Fred M, P.O. Box 384, Richardson, Texas 75080, U.S.A.
MITCHELL Dr D S, CSIRO, Division of Irrigation Research, Private Bag GRIFFITH, New South Wales 2680, Australia.
PEARCE Andrew J, BSc, Flat 29, 38 Windsor Park, Belfast 7, Northern Ireland.
PRICE D T, BSc, ARCS, ALS, Yew Tree Cottage, LLanbadoc, Usk, Monmouthshire.
REICHSTEIN Professor Dr T, Institut fur Organische Chemie, 19 St Johanns Ring, CH-4056 Basel, Switzerland. (Honorary Member)
RIBBINS Mrs Maureen, 83 Glenhurst Avenue, Bexley, Kent.
SERIZAWA Dr Shunsuke, Biological Institute, Aichi Kyoiku University, Kariya-shi, Aichi-ken 448, Japan.
SWINSCOW Dr T D V, MB, BS, MSc, FLS, 24 Monmouth Street, Topsham, Exeter, Devon.
TINNE Mrs A M, Lochwood Cottage, Gartcosh, Glasgow G69 8DX.

Changes of Name and Other Changes

Delete —	Akateeminen Kirjakauppa	**Re-insert as —**	HELSINKI UNIVERSITY, Dept of Botany, Unioninkatu 44, SF-00170 Helsinki 17, Suomi-Finland
	Blair Miss F M		BENNELL Mrs Frances M, 67 Prince Regent Street, Edinburgh EH6 4AP.
	Burnett B W		BURNETT Brian W and Mrs Wendy (Address unchanged)
	Glasnevin Botanic Garden		NATIONAL BOTANIC GARDENS, Glasnevin, Dublin 9, Irish Republic.
Delete —	from Members List	**Re-insert as —**	Honorary Members: BROOKFIELD Noel JACKSON Fred

Delete from Membership List —

L W Beer
BRWZ Ruch
Carter and Sharp
R Caus
W P Connolly
Dr J B Cordero
Miss C Corness
J E Craig (Philippines)
M D Crane
Dr J P Cullinane
Egyetemi Konyutar
P Evans
Professor J Ewan
Mrs O T Faithfull
G Falzon
Field Museum of Natural History
Mrs E F Goffey
S M Goodson
Mrs E M Green
S G Hathaway
B Hayhurst
Mrs P V Henderson
C Hill
K G Hirst
Hunt Botanical Library
B Ing
Instituto Botanico Dr J H Henriques
L James
T H S Kemp
J V Knight
W Lancaster
D Lewin
F H Low-Choy
Miss S J Mackay
Magyar Tudomanyos Akademia
B Makin
W L P Meagher
M Meyer
T A Milos
Dr and Mrs F W Mitchell
Countess of Moray
Dr M D Muir
Ms D Peck
Perrys Hardy Plant Farm
G R Proctor
T C Robles
Professor A R Sakya
Dr and Mrs H P Scott
Rev C E Shaw
B Shepard
Mrs D Sherman
S J Simon
A I Smith
Mrs W H Stevens
D R Sutton
P G Taylor
M Towers
P A Trower
S M Vasudeva
Mrs M L Wagner
Mrs C A Walker
Mrs C C Weglicki
J B T White
J M Wilks

Re-insert in Members List

OTT Dr Franklyn D and Dr Aleto Jo, Biology Department, Memphis State University, Memphis, Tennessee 38152, U.S.A.
VICARY Paul M, Laurel Cottage, Cricket Green, Hartley Wintney, Basingstoke, Hants RG27 8PJ.

MARRIAGES AND BIRTHS

We are happy to make the following announcements –

Marriage: Dr Robert A Finch – Jessica Deal, in early August 1977.

Birth: To A J (Tony) and Barbara Worland – a daughter, Abigail, on 11 November 1976

OBITUARIES

It is with great regret that we have to announce the following deaths –

Len W Beer who died suddenly in the spring of this year, was the curator of Bangor University Botanic Gardens. He was a very enthusiastic plantsman and took part in some expeditions to the Himalaya Mountains in search of new plants. He joined our Society in 1969 and we enjoyed his company on some of our field meetings. We extend our deepest sympathy to his widow.

F M Low Choy who died in the spring of this year, joined the Society in 1971. He lived in Australia and we know little about him; all correspondence was sent through his daughter who lives in this country and advised his death to us.

Late News Item. In Matt Busby's Midland Report (page 187) he mentions that Mrs Gwladys Tonge exhibited one of her paintings at the University of Aston meeting.

In the *Times* of Wednesday 2 November 1977 the following appears in their report on the late autumn show of the Royal Horticultural Society in London –

> "There is a large entry (of botanical paintings) and two gold medals have been awarded to this section." One ..... "was awarded to Gwladys Tonge for her water-colours of plants from the hedgerow and from her own cottage garden. They are very lovely, and three to enjoy are of *Tussilago farfara*, 'Old Blush' China rose, and *Cotoneaster wardii*".

We congratulate Mrs Tonge on her success, and we echo Matt's remark that we look forward to the day when we can put on an exhibition of her work.

MEETINGS PROGRAMME 1978

Meetings Secretary	A J Worland, 102 Queens Close, Harston, Cambs. CB2 5QN.
Meetings Committee	R F Cartwright, J A Crabbe, J W Dyce, J W Merryweather, M H Rickard, J R Woodhams.
Saturday 11 February	Indoor Meeting at the British Museum (Natural History), Cromwell Road, London SW7 5BD at 2.00 pm.
Saturday 11 February	Annual General Meeting to be held at the British Museum (Natural History), Cromwell Road, London SW7 5BD at 2.15 pm.
Saturday 20 May	Visit to the Fern Houses and outside fern borders at Kew Botanic Gardens. Meet outside Fern Houses at 2.30 pm.
Saturday 3 June	Visit to Savill Garden, Windsor Great Park, Berks at 11.00 am and 2.30 pm. Meet in car park inside Englefield Green entrance.
Sunday 11 June	Day Meeting on Cavenham Heath, Icklingham, Suffolk. Meet at 2.30 pm. Details of meeting place from Meetings Secretary. **Leader:** Tony Worland.
Friday/Sunday 16/18 June	Weekend Meeting in Silverdale, Lancs. **Leaders:** Reginald Kaye and Jimmy Dyce **Centre:** Yew Tree House, 3 Stankelt Road, Silverdale.
Saturday/Saturday 24 June/8 July	Two Week Meeting in Ireland **Leaders:** Clive Jermy, Moira Scannell and Donal Synnott. **Details from**— A Clive Jermy, British Museum (Natural History), Cromwell Road, London SW7 5BD.
Friday/Sunday 30 June/2 July	Weekend Meeting in western Cotswolds **Leader:** Matt Busby **Centre:** Burleigh Court Hotel, Brimscombe, nr Stroud, Glos.
Saturday/Friday 8/21 July	Two Week Field Meeting on Isle of Mull by University of York Natural History Society. Invitation extended to B.P.S. members to attend. **Information from** — James Merryweather, 8 Howard Street, York.
Saturday/Saturday 22/29 July	Week Meeting on Dartmoor, Devon. **Leader:** Martin Rickard **Centre:** Red Acre, Challa Brook Lane, Bovey Tracey, Devon.
Thursday/Saturday 17/19 August	Southport Flower Show. Many fern classes showing selection of best varieties. Visit the Society's Stand in the Societies' Tent.
Saturday/Sunday 2/9 September	Week Meeting at Kettlewell, Yorks. **Leaders:** John Barnett and Jimmy Dyce. **Centre:** Bluebell Hotel, Kettlewell.
Saturday 14 October	Indoor Meeting at Kew Botanic Gardens in the Cambridge Cottage from 1.30 pm.

REGIONAL DAY MEETINGS

Suitable dates to be arranged by direct personal contact with organisers —

Midlands: A R Busby, Department of Biological Sciences, University of Aston in Birmingham, Gosta Green, Birmingham B4 7ET.

South-west England : Christopher and Mary Potts, 4 Montpelier, Weston-super-Mare, Avon.

Yorkshire: James and Margaret Merryweather, 8 Howard Street, York.

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Professor Satoru Kurata, Dept of Forest Botany,
Faculty of Agriculture, Tokyo University, Hongo,
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BULLETIN

edited by
J W DYCE

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BRITISH PTERIDOLOGICAL SOCIETY

OFFICERS AND COMMITTEE 1978

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Dr Stanley Walker

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R Kaye   Professor Irene Manton

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Committee
H J Bruty   R F Cartwright   P G Coke
Mary Gibby   J W Grimes   A C Jermy   M H Rickard
H L Schollick   F J Tingey   S L Williams

The Society is open to all interested in any way in FERNS and FERN ALLIES upon payment of an annual subscription of £5.00 (subscribers), £4.00 (full members), £3.00 (students under 25 years old), £3.00 (members not receiving Gazette). Full details will be sent upon application to Membership Secretary.

Back numbers of the GAZETTE and the BULLETIN are available for purchase either as complete sets or single issues. Full details can be obtained from the Secretary.

THE

BULLETIN

OF THE

BRITISH PTERIDOLOGICAL SOCIETY

Vol 1 1978 No 6

SECRETARIAL NOTES

With this issue of the **Bulletin** we complete Volume 1 for which I have been responsible as Editor, but I am now retiring from this Office as well as that of Secretary of the Society. I have been very closely associated with the running of the Society since it was revived in 1947 after the war years, a matter of 31 years, during which time I served first as Treasurer, then as Secretary/Treasurer, and finally as Secretary/Treasurer/Editor of the Bulletin. In that time I have not become any younger, although I am sure in my own mind that it has been my association with ferns and the Society which has kept, and still keeps, me so active both in mind and in body, and I hope I shall continue so for another few years at least, to enable me to scramble on mountains and in other ferny places, and even to clamber up a few rocks, in pursuit of ferns.

In 1974 I began divesting myself of some of my duties when Dr Barry Thomas took over those of Treasurer, followed in 1976 by Lt Col Philip Coke as Membership Secretary, and now I complete the job. I took office at a time when the Society was at a very low ebb, but I can look back with some satisfaction in that I have done my bit to bring it back to vigorous life and to achieve heights far beyond any it had attained in the past. A R (Matt) Busby and Martin H Rickard have agreed to accept nomination as our new Secretary and Bulletin Editor respectively, and the appointments will be confirmed and become operative at our next AGM in February 1979. I am confident they will devote themselves with enthusiasm to their new duties and I hope you will all give them your fullest support in the years ahead, as you have given it to me in the past. For the time being until everything settles down under the new regime, the headquarters of the Society will continue to be my address — 46 Sedley Rise, Loughton, Essex IG10 1LT.

MEETINGS — Meetings Cards for 1979 are enclosed with this **Bulletin** to all inland members. Overseas members, visiting Britain, can obtain them on application to the Meetings Secretary.

SUBSCRIPTIONS become due on 1 January 1979 and prompt payment will be appreciated by the Membership Secretary. Many overseas members are uncertain about the best method for remitting their dues to this country, and with this issue we enclose a leaflet enumerating the different ways this can be done.

PUBLICATIONS BY AIRMAIL. Our journals can be sent by airmail to overseas members, provided they advise the Membership Secretary and pay an additional subscription to cover airmail postage, £1.50 for full members and £1.00 for members receiving only the **Bulletin**. The amounts should be included when sending annual dues, and are subject to change if postal rates are increased.

READING CIRCLE. The American Fern Journal, a quarterly containing much information for those seriously interested in ferns, is circulated to Reading Circle members. To join, apply to Mrs Mary Potts. 4 Kennel Lane, Webbington, near Axbridge, Somerset.

CORRECTION – Under **New Fern Variety Finds** in the 1977 **Bulletin** I ascribed the Schroder polystichum finds to the New Forest. Reginald Kaye to whom the plants were sent, points out that they were found in Ashdown Forest, not the New Forest.

THE FERN ATLAS. This long-awaited publication is now available to members, but **PLEASE NOTE** that it is not stocked by BPS Booksales. Copies can be obtained for £3.50 post free from F and M Perring, Oundle Lodge, Oundle, Peterborough PE8 5TN.

WHERE TO SEE FERNS. In the past we have frequently published in our journals a list of public and private gardens and other places which members can visit to see collections of ferns. This is now being published as a leaflet, a copy of which is enclosed with this **Bulletin** to inland members – overseas members, visiting this country, can obtain copies from the Secretary at 46 Sedley Rise, Loughton, Essex IGI0 ILT. **We welcome additions to the lists.**

SPECIAL NOTICE. We are asked by the British Museum (Natural History), Cromwell Road, London SW7 5BD to announce that the Department of Botany will be closed in future on Bank Holiday weekends, as from the beginning of 1979. Intending visitors, please note.

REFRESHMENTS AT INDOOR MEETINGS. Joan Woodhams has for some years now undertaken the responsibility for providing refreshments at indoor meetings, and everyone who has enjoyed the tea, sandwiches, cakes and other good things provided, will appreciate that the preparations have involved a lot of time and labour. This service has been given by Joan most willingly and cheerfully, but the time has come when we feel it is becoming an imposition to expect her to carry the responsibility indefinitely. We shall welcome a volunteer or volunteers to take over the responsibility for providing light refreshments at these meetings, and Joan will still be willing to help. I take this opportunity to express our grateful thanks for her very much appreciated contributions towards the success and pleasure of our indoor meetings. Will intending volunteers please contact the Secretary or the Meetings Secretary.

ACKNOWLEDGEMENTS. I have once again to give thanks to our contributors for a plentiful supply of material for this **Bulletin**, to Jim Crabbe and Martin Rickard for editorial assistance, and to Metloc who, as usual, have given me every consideration and help. Finally, since this issue marks the end of my editorship, I want to thank gratefully all those who have helped me to launch and maintain successfully two journals, the **Newsletter** and its successor the **Bulletin**, over the past 11 years.

CLOSING THOUGHT. The postscript to a letter received by me in the spring from a Continental member –

> 'The sun is shining, the ferns are coming, and I am still here. Life is beautiful'

FINANCIAL STATEMENT AS AT 31 DECEMBER 1977

ORDINARY ACCOUNT

Income 1976			
£1997.40	Subscriptions		1808.65
6.25	Donations		1.00
	Sales –		
97.42	Gazettes, Newsletters, Bulletins	177.50	
27.25	Victorian Fern Craze	3.00	
324.50	Hardy Ferns (Profits)	498.30	
154.07	Offprints (article sales to authors)	110.00	
55.28	Sundries	38.15	826.95
45.80	Interest on Deposit Accounts		
	Bank of Scotland	60.73	
	Greenwich Building Society	61.01	121.74
			£2758.34

Expenditure		
£ 347.93	Metloc a/c Bulletin Vol 1 No 5	282.00
975.00	Econoprint a/c Gazette Vol 11 part 5	975.00
133.58	Printing and Stationery	168.05
321.16	Administration Expenses and Postage	469.13
25.60	Subscriptions to Societies	25.60
6.50	Bank charges on Current Account	5.86
10.50	Indoor meeting costs	16.62
		£1942.26
654.74	Excess of income over expenditure	816.08
149.77	Balance carried forward from December 1976	269.29
804.51	Total	£1085.37
(535.22)	Transfer to Publications Account	56.00
269.29	Balance carried forward in Ordinary Account	£1029.37

PUBLICATIONS ACCOUNT

Income		
£1000.00	Balance carried forward	1000.00
	Transferred from Ordinary Account	56.00
		£1056.00
Expenditure	Metloc – reprinting Gazettes	56.00
	Balance in hand	£1000.00

GREENFIELD FUND

Income		
	Balance carried forward	1094.00
	Interest	21.45
	Balance in hand	£1115.45

TREASURER'S REPORT

This year's accounts once again show the Society's financial situation to be reasonably sound. However, it must be emphasised that for the second year running subscriptions have almost equalled our expenditure. It is only on peripheral sales and interest on deposit accounts that we survive and gradually accrue capital. The cost of printing the Gazette did not increase this year but administration expenses and postage continued to rise despite our efforts.
It should be noted that this year we have not made large transfers from the Ordinary Account to the Publications and Greenfield Funds. The combined figures of last year's transfers, £535.22 shown in brackets in the Statement, taken in conjunction with the good profit this year on the sale of *Hardy Ferns,* explains largely the discrepancy between last year's and this year's balances carried forward. The Greenfield Fund has once again risen so that £115.45 is available for use.

THE ANNUAL GENERAL MEETING – 11 FEBRUARY 1978

The 75th AGM of the Society was held at the British Museum (Natural History) in London on 11 February 1978, as usual in conjunction with the Spring Indoor Meeting. We had an attendance of 32 members. The President, Dr Stanley Walker, was in the Chair.

The Secretary's Report reviewed the happenings of the year. The total membership was 520; new members numbered 60 but this increase was largely offset by a weeding out of the defaulters resulting from the subscription increase at the beginning of 1976. We now have a clearer picture of the real strength of the Society. At the end of the year Lt Col Philip Coke took over the duties of Membership Secretary, thereby relieving both the Secretary and Treasurer of some work. The Secretary gave notice that he plans to retire from all his other duties at the end of 1978 – fortunately willing hands are ready to take over and the Society will cease to be the "one-man band" it has been for so many years.

The Treasurer submitted his report which showed our finances to be in a healthy condition. There was nothing of a controversial nature and it was accepted by the Meeting

We had a great deal of worry with the *Fern Gazette* which did not appear until December, due to labour troubles at the printers. Ideally, we plan to space the publication dates of the *Gazette* and the *Bulletin* six months apart, in May and November respectively, but 1977 saw the *Bulletin* distributed a matter of days ahead of the *Gazette.* We hope to do better in 1978. Dr Page is finding it difficult to cope with all the additional work and worry caused by the printing delays and it is becoming necessary that we appoint a business manager who can take all the responsibilities outside his editorial work off his shoulders, and also be responsible for the journal's distribution. There is no falling off in the steady flow of suitable contributions of high quality and the future is assured. Happily, the *Bulletin* has escaped these troubles and its Editor enjoys the happiest associations with, and interested co-operation of his printers, Metloc.

Reginald Kaye's book *Hardy Ferns* continues to sell very well and almost all of the 500 copies already bound, have been sold. We are waiting for the remainder of about 400 to be bound and are confident that the demand for the book will continue. At last, the new

Fern Atlas, being published jointly by the Botanical Society of the British Isles and our Society has been completed and will be published in the spring of 1978.

Dr Stanley Walker was elected President for his third year in the Office and all the other officers were re-elected, plus Lt Col Philip Coke as Membership Secretary. A second Auditor, John Cramp, was elected from our own membership to share the duties with our outside Auditor, J Moulton. The retiring members of the Committee were A R Busby and J A Crabbe and we thank them for their work on behalf of the Society while in office. They were replaced by Dr Mary Gibby and M R Rickard. Our Vice-President Fred Jackson was elected an honorary member of the Society in recognition of his many services to the fern cult and to the Society over the many years he has been associated with us.

MEETINGS 1978

The Spring Indoor Meeting on 11 February at the British Museum (Natural History) followed on after the AGM and took the form of an exhibition to which many members contributed. Fronds of species and varieties, both fresh and pressed, were shown by Philip Coke and Jimmy Dyce, also a selection of the Jones Nature Prints. There was an exhibit of Dryopteris species by Christopher Fraser Jenkins, of Polypodies in the British Isles by Jim Crabbe and of Isoetes by Devon Mazarati. Sheets from the forthcoming *Fern Atlas* were shown by Clive Jermy, and many books were on show as well as a good selection for sale by BPS Booksales. We were delighted too that Gwladys Tonge responded to our hint in the last issue of the Bulletin (late news item, p.223) and exhibited some of her flower paintings — they well deserved the Royal Horticultural Society award of a gold medal last year. After an enjoyable buffet meal we had a showing of slides with commentaries by various members.

The Autumn Indoor Meeting was held on 14 October at Kew Botanic Gardens in the Cambridge Cottage, and was attended by 38 members. There were exhibits of plants and fronds and a selection of fern books for sale. Clive Jermy introduced the speaker, our member Mrs Barbara Croxall of the Botany School Cambridge, who talked on the ferns of her native country, New Zealand, accompanied by many fine slides. These were not only of ferns but included types of habitat and general views of fern country which were most informative as well as interesting. She extended the range of her talk to cover Australia and New Guinea and had a most appreciative audience. Informal chat occupied the rest of the afternoon, and Joan Woodhams provided tea and cakes. For some years Joan has undertaken the responsibility for providing this enjoyable part of the proceedings at our indoor meetings. She has gone to great trouble and given willingly of her time and we are most grateful to her. Please note a further paragraph about this which appears in the Secretarial Notes.

DAY MEETINGS

Kew Meeting — 20 May. A gathering of 36 members and friends assembled outside the Fern Houses, and among them I was pleased to welcome several new members. We started off with a talk on fern pests from John Woodhams, illustrated by examples of infested plants, showing mealy bug, scale, insects, eelworm, cockroaches, slugs, etc, and the results of their ravages. Methods of control and their efficacy were discussed and included sprays, systemic insecticides and baits. Afterwards we enjoyed an interesting tour through the Houses with commentaries from John and from Professor Holttum. Joan Woodhams served tea and biscuits to the party and we thank her for this welcome interlude. Later, several of us finished up at the Holttums for tea, and as she always does on these occasions, Ursula Holttum coped magnificently with the invasion and regaled us with her delicious home-baked scones and a variety of mouth-watering cakes and cup after cup of refreshing tea. It was a perfect end to a happy day - thank you Ursula and Eric Holttum.

Savill Garden, Windsor - 3 June. A party of 17 members and friends were welcomed by the Keeper of the Gardens John Bond and one of his assistants, Lyn Randall, both of them members of the Society. We had a short introductory talk about the Garden and were then conducted round to all the ferny parts. John Bond is becoming much more actively interested in ferns, as is his assistant, but he does not believe in keeping the collection all in one place, and so we saw it, bit by bit, tucked away in many suitable corners. It was good to see so active an interest being taken in the fern varieties and many excellent ones were shown to us. They are planning to introduce more this year. A feature of the Garden is its many ponds, and their margins are put to good use by the many large-growing clumps of the Royal Fern *(Osmunda regalis)* which are obviously very much in their element. The day was a lovely June one and the rhododendrons and azaleas in their abundance were in full bloom, painting the Garden with their splashes of rich colouring, and adding greatly to the enjoyment of our visit.

Cavenham Heath, Suffolk - 11 June. On a beautiful day, sunny but not too hot, a party of 7 assembled at the meeting place on the Heath near Icklingham. With the permission of the warden we were allowed to explore the area of heath and woodland from which the public are excluded to safeguard nesting birds. During a previous visit 9 years ago we recorded 9 species of ferns and allies — *Athyrium filix-femina, Dryopteris carthusiana, D. austriaca, D. filix-mas, Pteridium aquilinum, Thelypteris palustris, Equisetum arvense, E. fluviatile* and *E. palustre;* this time we did not find *E. fluviatile* but added *D. pseudomas.* The male ferns were growing strongly in the damp woods which provided ideal conditions for extensive colonies of *T. palustris.* On the way home, on a short visit to the coniferous woodland of Mildenhall Warren near Barton Mills we found only *D. austriaca* and *D. filix-mas.* Our last call was to a wood near Chippenham which was very interesting fernwise although most of the ferns were well hidden among strong-growing nettles which were the dominant ground-cover plants. We recorded 5 species — *Dryopteris austriaca, D. carthusiana, D. filix-mas, D. pseudomas* and *Polystichum setiferum,* despite the discomfort of wading through the dense growth of waist-high nettles. We also noted a very large robust male fern which was tentatively identified as *D. X tavelii.*

REGIONAL DAY MEETINGS

Our two regional meetings organisers, Mary Potts in South-west England and Matt Busby in the Midlands have been very active again, and both have made very good contributions to the active life of the Society. I have been able to give both these energetic enthusiasts some support this year by showing the secretarial flag at two of Mary's meetings and at one of Matt's. The success of these meetings depends entirely on the selfless enthusiasm of organisers devoted to ferns and to the Society's aims to further fern interest in others. We have two very active centres in the South-west and in the Midlands, but what about

Wales, the North of England and – Scotland! Regretfully, meetings of the Society in Scotland have had to be dropped from our programmes because of little or no support, due obviously to present-day cost of travel and accommodation and to the distances involved. Most of our active supporters of field meetings seem to live in the south, and it may be that northern members, more accustomed to living their everyday lives surrounded by ferns, do not feel the need for meetings to study them. Be that as it may, it would be very satisfactory to have a Scottish member with the organising enthusiasm and drive of Mary Potts and Matt Busby, to launch a regional programme in the north.

South-west England. In Mary's preamble to her report she says that now I have attended her meetings I know she was not boasting when she has enthused in the past over the hospitality and general conviviality of these gatherings – but I never doubted her; I have myself experienced the same warmth of welcome and hospitality from all the hosts concerned, including Mary. I was very glad that nothing intruded this year to prevent me attending. Mary writes –

The Potts at Home – 18 June. Fourteen members and friends attended, and in the morning plants and gossip were exchanged. In the afternoon a visit was paid to Longwood, a sheltered limestone woodland situated above Cheddar Gorge, and 14 species of ferns were observed, including *Gymnocarpium robertianum* and some fine stands of the hard shield fern, *Polystichum aculeatum.*

Kenneth Adlam's Fern Day – 29 July. This was a very successful meeting with 18 members attending on a warm sunny day when the cold drinks – and some not so "cold"! – with which we were welcomed, were most acceptable. The garden with its well-kept extensive lawns was seen at its best and a convivial time was spent admiring it, seeing the ferns and exchanging plants and news. Kenneth is growing more ferns from spores and some time was spent puzzling over the nomenclature of plants grown from spores received from the Spore Exchange! We thank our hosts for a most delightful day and their warm hospitality.

Philip Coke's Fern Day – 5 August. This meeting was, as usual, a day of interest to the 16 members who attended and Philip's fern collection provided us with plenty to look at and discuss. It is enlarging every year and is always well-worth visiting. The garden is on a slope with winding paths, and fern surprises meet one at every turn, most of them grown from his own spore sowings which have produced some superb fern varieties. In his propagation house are many pans of sporelings coming on and many potted ferns including some most beautiful maidenhairs brought back from his visit to Australia last year. The weather was not quite so good at this meeting but this was more than compensated for by the generous hospitality of Mary and Philip whom we thank warmly for a most enjoyable day.

Mary Potts concludes – Though the weather has certainly favoured ferns this year, it also favoured our meetings and this, together with the generosity of our hosts, ensured the success of our South-west meetings. We thank all the members who supported them and those who brought plants. Next year we hope to expand the programme to offer more gardens to visit and fern walks of local interest.

Note. Will members in the South-west – and elsewhere – please note that Mary Potts has now moved from Weston-super-Mare and her new address is – 4 Kennel Lane, Webbington, near Axbridge, Somerset; telephone – 093 472 545. If you live within reasonable distance (and **reasonable** can become quite **unreasonable** when you get to know Christopher and

Mary Potts and their enthusiasm for ferns!) and have not yet joined Mary's "circle", you are invited to get in touch with her so that you can be put on her mailing list for the South-west regional meetings.

Midlands. Matt Busby has had another very active year among ferns. In January he wrote that he was still in the middle of a survey of the ferns along the canals of the West Midland conurbation. He reported in the 1976 **Bulletin** on the first stages of this work which will cover an enormous area with a most complicated network of canals and feeder lakes, and much of his spare time is devoted to this self-imposed task. In February disaster struck in his fern house at Aston University in Birmingham when the heating failed, resulting in the loss of almost a quarter of his ferns and serious damage to the rest. In spite of this, in the spring he put on a fern display for the Society at the Solihull Spring Flower Show, which earned him a good "write-up" in the local papers with an excellent photograph of him in his fern house at the University. This attracted much attention and interest, and so pleased was the organising horticultural society that they have asked him to put up another display next year, and have invited him to talk on ferns to their members. During the summer months he undertook single-handed the mammoth task of moving the large fern collection of our member T A Dyer of Alrewas in Staffordshire to the Oxford Botanic Garden. On top of all this work for the fern cult Matt is running a course of six meetings, entitled *Introduction to the Ferns and their Allies,* at the University of Aston this autumn.

Matt's regional programme is sent out to all our members in the area, and how wide that area is depends on how keen members are to participate in his activities. If you want to be on his mailing list, his address is – Department of Biological Sciences, University of Aston in Birmingham, Gosta Green, Birmingham B4 7ET. This year it contained three organised visits and Matt reports as follows –

Meeting at the University of Aston – 27 May. Due to the failure of the Fern House heating in late February and the replacement of the old staging, I was unable to prepare a regional programme until late in the spring. Consequently, this meeting clashed with the spring bank holiday and only three members were able to attend. By that time most of the ferns had recovered but some plants were lost including a number of species grown from spores over the past 4 years for the teaching collection.

The Coughlin's Meeting – 10 June. Once again, Ray and Rita's garden proved a popular attraction, with 27 members and friends attending on a dry but chilly day. Ray and Rita had begun some alterations to the garden in preparation for the surgery which is about to take place when part of their ground is being incorporated in new motorway works. Fortunately, all the cultivated part will be saved and the loss will be chiefly a very pleasant bit of woodland through which a path meanders and has added greatly to the attraction of one of the Midland's most lovely gardens. We thank our hosts for providing members with an enjoyable day and superb fare, both wet and dry.

Fibrex Nurseries Meeting – 10 September. A Sunday afternoon visit to Hazel Key's nursery at Evesham gave 30 members and friends an opportunity to see a wide range of hardy and tender ferns, together with other more colourful plants including pelargoniums and ivies of every description. Every gardener has his favourites and I am sure that everyone at the meeting noted several new attractions for future planting. May I express, on behalf of everyone, a warm thankyou to Hazel and her family for providing such friendly hospitality.

WEEKEND MEETINGS

Silverdale — 16/18 June. The remarkable thing about this meeting was the excellent attendance — 17 members and friends turned up — which gave great satisfaction to me and enabled me to become acquainted with several of our newer members, including Milton and Jean Mulloy from the USA. The pleasing things were the sunny warm weather and the visits to Reg Kaye's fern nursery. I expect some members came just for the opportunity to see the nursery! We foregathered there on the Friday evening and the long light of mid-summer enabled Reg to lead a walk round some of his local woods. Saturday morning was spent in the wooded Gait Barrows about 2 miles from our centre, and 12 species were recorded, all of them the usual ones which can be found in limestone pavement areas; Silverdale and the surrounding country is very much an area of pavement, some bare and some well wooded. In the afternoon we travelled further afield to Hutton Roof, the high limestone hill several miles to the east, which we have often visited and fully recorded. Nothing new was found on this occasion but it gave an opportunity to introduce some newer members to this type of habitat. In the evening a few of us paid a short visit to Cringlebarrow Wood near Yealand Redmayne. An interesting feature here was a large colony of *Polystichum aculeatum* which we found growing in only one small part of the wood. Reg and I paid another visit on the Monday following the Meeting but nothing further of particular interest was found although the wood looked very promising.

On Sunday we explored east of Lancaster around Black Fell. Hymenophyllums are reported from the deep valleys on the north side of the Fell but we did not find any. The morning was spent in Cragg Wood, a wet wood which did not provide very exciting hunting apart from some very large growing *Dryopteris pseudomas,* very typical *D. carthusiana* and a fine colony of the horsetail *Equisetum sylvaticum* — 11 fern and allied species were seen. Potts Wood, a mile or so further north was much better. The Artle Beck flows through this deep wooded valley, providing ideal habitats for many species of ferns, most of them on the steep rock banks of the stream. We noted 11 species, one of the most common being *P. aculeatum.* We had time only to hunt a small part of the ravine and a longer stay on some future occasion may provide more of interest. We were working with the new edition of the *Fern Atlas* which has just been published, and no new records were made. Our enjoyable weekend was completed by the hospitality of Reg and Marion Kaye to whom we record our grateful thanks.

The Cotswolds — 30 June/ 2 July. If the Silverdale meeting was remarkable for its excellent attendance this one was even more so with 19 members and friends present. Unfortunately, Matt Busby who was to lead the meeting, could not be with us and I had to take over with the valuable assistance of Martin Rickard. It was a joy to have so many keen young members with us, some for the first time, including two who came as visitors and joined during the Meeting. We were very comfortably centred at the Burleigh Court Hotel perched on high ground above Brimscombe near Stroud with fine views of the valley below. The country-side is extremely hilly and well wooded but was not, at least in the parts we visited, an extremely ferny area. The common fern in most places was the hartstongue. On Saturday we visited woodland near Nether Lypiatt, a few miles north of our centre and recorded 11 ferns and allies. In addition to *Asplenium scolopendrium,* the male fern *Dryopteris filix-mas* was the only one seen in great numbers and there were some very large colonies of the giant horsetail, *Equisetum telmateia.* The scolopendriums presented quite a large range of forms from narrow to wide, and undulate ones were very common. One crested specimen and one with the undulations nearly approaching the crispum standard were collected. In the afternoon we had similar hunting near Sapperton and at Edgeworth, to the east of Stroud. At the former place, at the entrance to the old canal tunnel, there was a fine colony of very large growing *Gymnocarpium robertianum,* and some members travelling further east to Daglingworth found *Asplenium ceterach* on the village walls.

On Sunday morning we hunted the wooded Pen Hill adjacent to Selsley Common near Woodchester. Ferns were rather scarce here and included the common species seen elsewhere but for the variety hunters this visit was the highlight of the weekend with the find of an excellent *Polystichum setiferum* 'Divisilobum', our best find in the wild for very many years. The lucky finder was our latest recruit, Nick Hards, who only that day became a member; he has started his association with us on a high note! The afternoon was spent in the garden of Philip Coke who lives in the area and we were able to see many fine fern varieties excellently grown, most of them plants from Philip's own spore sowings. A welcome cup of tea and cake rounded off a very enjoyable and interesting visit, and many ferns were seen being carefully stowed away in the cars at the end of the visit which terminated the Meeting. We thank Mary and Philip Coke very much for their hospitality.

No new records were made for the *Atlas;* ferns seen were *Asplenium ceterach, A. ruta-muraria, A. scolopendrium, A. trichomanes, Athyrium filix-femina, Dryopteris austriaca, D. filix-mas, D. pseudomas, Gymnocarpium robertianum, Polypodium interjectum, P. vulgare, Polystichum aculeatum, P. setiferum, Pteridium aquilinum* and the horsetails *Equisetum arvense* and *E. telmateia.*

WEEK MEETINGS

Dartmoor — 22/29 July. A very pleasant centre, the Red Acre Hotel in Bovey Tracey, was chosen for this meeting, and a party of six members assembled on the Saturday evening, looking forward to a good week's hunting in what promised to be good weather. Our leader was Martin Rickard, and it was nice to have with us Dr Chris Page from Edinburgh Botanic Garden, whose botanical expertise was most useful; the rest of the party were Chris Pearce, Richard and Angela Rush and Jimmy Dyce. On Tuesday we were joined by Evangeline Borup who at the time was staying at her cottage at Sticklepath near Okehampton.

We found the area dry and dusty around our hotel when, after our arrival, we spent a short time exploring in the vicinity (Grid ref. 20/87). We quickly recorded 12 fern species from the entrance drive to the hotel and from a nearby ditch, *Asplenium adiantum-nigrum, A. scolopendrium, Athyrium filix-femina, Dryopteris austriaca, D. filix-mas, D. pseudomas* and *Polystichum setiferum,* all being quite abundant, particularly the first and last named species. The others were *A. trichomanes, Polypodium interjectum, Pteridium aquilinum, Equisetum arvense* and, most interesting of all, some plants of the hybrid polystichum *P. X bicknellii.* Rain was obviously needed, but as happens so often with us the BPS was able to put this right, for next morning a gentle rain was falling and continued all day, making fern hunting in the places we like to frequent an uncomfortable occupation. We planned to spend the morning in the Webburn Valley (20/77) where we have been often in the past but such is its attraction that we always return when in the area. It is well-wooded with the pleasant stream flowing through it, its banks adorned by the graceful fronds of *Osmunda regalis* and in its higher reaches a colony of *Hymenophyllum tunbrigense.* We found both of them this time but a small colony of *H wilsonii* seen on a visit several years ago near the other species could not be found. In 1966 we recorded 14 species and this time a similar number was found — *A scolopendrium, A. trichomanes, A. filix-femina, Blechnum spicant, D. austriaca, D. filix-mas, D. pseudomas, H. tunbrigense, Oreopteris* *limbosperma, O. regalis, P. interjectum, P. vulgare, P. setiferum* and *P. aquilinum.* In place of *H. wilsonii* not seen this time, the number was made up by the new find of *P. interjectum.*

The morning started badly with the party inadvertently splitting into two groups. After trying in vain to find the others in the network of lanes Martin Rickard and I continued alone, doing some desultory hunting in the rain during the search, and in so doing found an interesting plant of *A. adiantum-nigrum,* more finely divided than normal. The Webburn Valley occupied the rest of our morning and in the afternoon we visited Hexworthy (20/67) in search of a colony of *A. adiantum-nigrum,* found by Druery in 1883, which was characterised by long attenuate tails to both fronds and pinnae and hence named 'Caudifolium'. The colony consisting of hundreds of plants was growing on a stone dyke, and thirty years later in 1913 during our Society's Annual Excursion to the area it was still there but depleted in numbers by drought. It would be very gratifying if we could have reported the continued existence of the fern after the lapse of a further 65 years but Hexworthy covers a lot of ground with a large number of stone dykes and the early Gazette report, quite rightly, gives no further details. We searched in all likely places in vain, very conscious of the fact that if the colony had suffered from drought in 1913 its survival chances were slim after the exceptional drought of 1976. We did note, however, that many plants of the species growing in the area had a tendency to develop caudate frond tips and perhaps the variety is still there. From Hexworthy we went south to Buckfast Church (20/76) where we hoped to find *P. australe* on the limestone. We recorded 6 species, all good limestone ones, *A. ceterach, A. ruta-muraria, A. scolopendrium, A. trichomanes, P. australe* and *P. interjectum.* The *ceterach* with the *ruta-muraria* and *trichomanes* were growing in the churchyard walls, a man-made limestone habitat, but in a deep sheltered lane behind the church we again found them growing abundantly and large in a more natural home. The hartstongues were particularly handsome, there were large clumps of *A. ceterach,* also *P. interjectum* with very long fronds draping the banks, but best of all was *P. australe* with the old fronds now dying and yellow in colour growing luxuriantly to a large size. This fern produces its new fronds in the autumn and only some of them were beginning to show, but the old ones, up to 2 feet in length, were still attached to the rhizomes and their bright colour on the banks of the lane added greatly to the beauty of the scene. We were very interested to find that many were deeply serrate and a few were good examples of the variety 'Semilacerum'; one good clump of this was collected, the pinnae on the lower halves of the fronds being deeply cut and the segments extended to over an inch in length. This was an excellent find. Our hunting here was rather perfunctory because of the weather, and further searching could produce more good things. A nearby quarry looked promising but it was overgrown with bushes and nettles, all looking disagreeably wet, so we contented ourselves with a look from the entrance. Moving on towards Diptford we made a short stop near Avonwick (20/75) where along the road 13 species were seen — *A. adiantum-nigrum, A. ruta-muraria, A. scolopendrium, A. filix-femina, D. austriaca, D. filix-mas, D. pseudomas, P. interjectum, P. vulgare, P. setiferum, P. aquilinum,* a fine specimen of the hybrid *D. X. tavelii,* and a very large growing *E. arvense* looking very like *E, telmateia.* Another short stop was made at Diptford (20/75) where there is an old record for *Cystopteris alpina* on a wall in the village but we could not find it. We noted 6 species — *A. adiantum-nigrum, A. scolopendrium, A. trichomanes, D. filix-mas, D. pseudomas* and *P. interjectum.* At Berry Pomeroy we visited the old ruined Berry Castle (20/86) and found its walls supporting an abundant *P. australe* colony. Again there were excellent ***serratum*** specimens approaching 'Semilacerum' and some were collected. We found 9 species here, the others being *A. scolopendrium, A. trichomanes, A. filix-femina,* *D. austriaca, D. filix-mas, D. pseudomas, P. setiferum* and *P. aquilinum.*

Our other party did not waste their day. Under the leadership of Chris Page they visited Sharp Tor (20/88), finding the bracken abundant but very few other ferns, only *B. spicant, D. austriaca* and *P. interjectum* being seen. Near New Bridge, Holne (20/77) *O. regalis* was found, also *A. filix-femina, D. austriaca, D. filix-mas, D. pseudomas, O. limbosperma* and *P. interjectum.* They also visited the Webburn Valley, seeing the same ferns as we did but they did not know where the *H. tunbrigense* grows and so missed it.

Monday was a fine day, and so the weather continued for the rest of the week, and any rain was confined to the nights. In the morning we visited Chudleigh Rocks (20/87), a rather wild area of limestone cliff and valley, well wooded and abundant in ferns and other vegetation. We noted 10 species growing on the rocks, on the trees and on the steep slopes leading down to a stream. *P. australe,* much of it serrate, was common both on the rocks and on the trees, accompanied by *P. interjectum,* and in one place on top of the cliffs was a fine colony of *A. ceterach.* A common fern was *A. scolopendrium* growing on the slopes and accompanied by *D. austriaca, D. filix-mas, D. pseudomas* and *P. setiferum.* Scattered in odd corners was *A. trichomanes* and down by the stream grew a magnificent plant of *D. X. tavelii* which must be the largest I have ever seen – it was a tripinnate form and a crown was collected from the clump. As at Buckfast, the *P. australe* was shedding its old fronds which were brightly coloured and very conspicuous, making identification easy. There was very little sign of the new fronds on most plants except in warm sheltered corners facing south where they were beginning to unfurl.

Still pursuing rocks, our next hunting was at Great Rock (20/88), north of Hennock. The area is a steep wooded slope covered with gigantic rocks on which, according to an old record, *A. septentrionale* has been found. It seemed a likely place for this fern but we did not find it and recorded only 8 species. A very common fern was *D. pseudomas,* and also common were *D. austriaca* and *P. vulgare,* the latter appearing in great patches on the rocks. The other ferns seen were *A. filix-femina, B. spicant, D. filix-mas, P. interjectum* and *P. aquilinum.* Returning to Chudleigh, we spent the rest of the day visiting a plant nursery adjacent to the Rocks and obtained permission to explore a sadly neglected part of it which is almost completely surrounded by the cliffs. In it we found the remains of many good plants and trees struggling against the invading weeds and bushes, while at the base of the cliff large plants of *A. scolopendrium* flourished; higher up, the rock face was bright with the dying fronds of *P. australe.*

We took advantage of the long daylight to hunt some of the lanes near our hotel in the evening and one proved very interesting with much of the fern population showing minor variation, so much so that some plants were collected. The following morning we extended this search of the local lanes to include a long bridlepath which we had hardly entered before finding two plants of an unusual *A. adiantum-nigrum* which looked very like the species *A. onopteris.* A frond was collected to be checked by Chris Page on his return to Edinburgh, but we still await his confirmation that it is indeed this species and; if so, a new record for the British Isles outside Ireland. Ferns were very abundant in this lane and 15 species were noted. – *A. adiantum-nigrum, A. scolopendrium, A. trichomanes, A. filix-femina, B. spicant, D. austriaca, D. filix-mas, D. pseudomas, P. interjectum, P. vulgare* and *P. aquilinum.* A large colony of polystichum was found in one place, some of it *P. aculeatum,* but one plant of *P. setiferum* was included and the rest proved to be, what seemed obvious in the field, *P. X bicknellii.* A colony of *P. setiferum* further on contained some good tripinnate forms. One plant of *D. X tavelii* was seen and we collected a fairly good crispum variety of *B. spicant.*

The lane occupied most of the morning and from here it was a short drive north to Becky Falls (20/78) where we spent a short time scrambling in the rocky terrain around the Falls. Although the number of species was much lower than in the lane we had just left – they numbered only 9 – ferns grew in large numbers, and we noted particularly the large strong growth of the *A. filix-femina* and *D. pseudomas;* some most magnificent specimens were seen. The other species were *B. spicant, D. austriaca, D. filix-mas, P. vulgare, P. aquilinum* and, hidden away among the rocks, both hymenophyllums, *H. tunbrigense* and *H. wilsonii,* the former in quantity but only one small patch of the latter. One minor variety of *A. filix-femina* was collected – 'Incisum Cristulatum'.

We were joined here by Evangeline Borup and in the afternoon went on to Fingle Bridge (20/78) where, in 1971, I found a fine colony of *D. X deweveri.* It was in the hope of seeing this again that we returned, but alas! in the intervening years the bracken seems to have taken over and swamped the site, and all we could find was a single small plant of the hybrid. Ferns are still as plentiful in the area, particularly the dryopteris species, and in all we recorded 16 species – *A. adiantum-nigrum, A. ruta-muraria, A. scolopendrium, A. trichomanes, A. filix-femina, B. spicant, D. austriaca, D. carthusiana, D. filix-mas, D. pseudomas, P. vulgare, P. aculeatum, P. setiferum* and *P. aquilinum;* as well as *D. X deweveri* we also found a plant of *D. X tavelii.*

From here it was not far to Sticklepath and we drove Mrs. Borup back to her cottage there. Earlier in the day the trained eye of Chris Page spotted on the roadside bank as we sped past in the cars, what he was certain was *Equisetum X litorale* and on the return journey from Sticklepath we stopped at the spot, on the main road east of Chagford (20/78), to find that indeed he was correct and the colony is a new record for the West Country. Later in the week, with more time to spare, we again stopped at the site and found that the horsetail extended much further along the road in great abundance.

On Wednesday we decided to have a day further afield and visited the south coast at Berry Head (20/95) to follow up an old record for *Adiantum capillus-veneris* on the sea cliffs near there. We searched the likely places in vain, but the tide was in and our access was restricted. Very few ferns seemed to grow here and only 7 species were noted – *A. marinum, A. ruta-muraria, A. scolopendrium, A. filix-femina, D. filix-mas, P. setiferum* and *P. aquilinum.* After a short stay here we went on further west to Prawle Point (20/73) where even fewer ferns were seen – *A. billotii, A. marinum, A. scolopendrium* and *P. aquilinum.* Our chief reason for this visit was to see the two spleenworts and to show them to our newer members – *marinum* is essentially a fern of the sea-cliffs and *billotii* is one of our rarer ferns restricted, with few exceptions, to the west of Wales and the south-west of England; it is mostly to be found around the coasts and never very far from the sea. Apart from achieving this object, the whole day was a somewhat wasted one. It was hot and we got caught up well and truly in the holiday traffic of this very popular holiday area, something which some of us find it extremely difficult to tolerate!

We were back in haunts more to our liking on Thursday. About 3 miles north of Bovey Tracey is a series of reservoirs surrounded by woodland (20/88) and we obtained permission to explore along the banks. The main attraction was *Isoetes echinospora,* a water fern, and this we found growing in abundance in the shallow water near the shores. Also, growing in great numbers along the high water line among the stones and grass was *O. regalis,* but all the plants were stunted and seemed to be struggling against adversity in a habitat which otherwise was obviously one which could be well-suited to their demands – presumably they get flooded too often for their liking when the reservoirs are full. Other ferns found here and along the nearby road were *A. adiantum-nigrum, A. ruta-muraria, A. trichomanes, A. filix-femina, D. austriaca, D. filix-mas, D. pseudomas, P. Vulgare* and *P. aquilinum.* One plant of what seemed to be *D. X tavelii* was noted but we were unable to agree on a definite identification. Another "new" was *E. X litorale,* obviously found once again by Chris Page, one of whose special fields of research is the equisetums. One wonders how often certain ferns and allies are overlooked by us in the field when we do not have with us members with specialist knowledge! An excellent variety found along the road by Martin Rickard was *A. filix-femina* 'Congestum Crispum'; it is not as congested nor as crisp as the best of its kind in cultivation, but nevertheless a first-rate specimen of a variety which I have never before seen in the wild.

Travelling north, a short stop was made at Blackingstone Rock (20/78) to check on an old record for *A. billotii.* The Rock is a huge lump of stone standing on high ground at over 1000 feet and marked as a viewpoint on the map. We certainly got a magnificent view from the top but a strong gusty wind was blowing and we did not stay long to enjoy it. We found our fern, two colonies of it in rock crevices, one of them large and very vigorous. There were 6 other species on or around the Rock – *A. adiantum-nigrum, A. filix-femina, B. spicant, P. australe, P. vulgare* and *P. aquilinum.*

We spent the afternoon in a most interesting deep wooded valley near the hamlet of Teigncombe (20/68). This proved to be a veritable fern paradise and many of the 13 species seen were growing in great abundance. A very steep and muddy path dropped down to a footbridge across the River Teign which flows through this jungle-like territory. As we crossed it we were greeted by a rather nondescript royal fern but others of truly royal dimensions were found later along the river bank, presenting a beautiful picture with their great fronds overhanging the slow-moving water. A colony of *D. X deweveri* was seen and some of the plants proved, on later examination, to be one of the parents, *D. carthusiana,* although not very characteristic of the species. The common woodland ferns were very abundant in a habitat very much to their liking; they were growing to a very large size, many of them in great clumps – *A. filix-femina, D. austriaca, D. filix-mas* and *D. pseudomas.* With them *B. spicant* was plentiful and on the higher ground was some *O. limbosperma* with, on a nearby wall, *A. trichomanes* and, in the more open places, *P. aquilinum.* Along the river banks was some *D. aemula* but we hunted in vain for any sign of either of the hymenophyllums on the moss-covered large boulders strewn along its course and on the banks, although the habitat appeared most suitable for them. The high humidity of the woods favoured the growth of mosses and *P. vulgare* on both rocks and trees, particularly on the south-facing slope of the valley which as well as being densely wooded, was extremely rocky with large moss-covered boulders and low cliffs. It was a difficult place to penetrate because of many fallen trees, most of them festooned with vigorous colonies of *P. vulgare,* and in the time available we could see but little of it. A good divided *D. austriaca* was found early in our searching, which stimulated our efforts but no further varietal finds were made although it was one of those places which makes the hunter feel there are good things there to find. We have earmarked this valley for further, more leisurely, exploration.

On Thursday night there was heavy rain which was to affect some of our hunting on Friday although the day was warm and dry. We had several loose ends to tie up on this last day of our week and we started off with a quick visit to Venford Reservoir near Holne (20/67) in the hope of finding one of the isoetes in its waters. We were not successful and the few ferns seen in this area set in the midst of a sea of *P. aquilinum,* were *A. filix-femina, B. spicant, D. austriaca, P. vulgare* and *O. limbosperma.* We were near Hexworthy and with the added search power of our whole party we decided to have another look for Druery's elusive stone dyke with its possibly still surviving *A. adiantum-nigrum* 'Caudifolium'. Again it was a fruitless endeavour but much map-studying later on convinced us we were not looking in the right place, so there is still hope that the fern will be refound. We did, however, amass a goodly list of records, 15 in all. Some *A. adiantum-nigrum* was seen on walls,along with *A. scolopendrium, A. ruta-muraria, A. trichomanes, P. interjectum* and *P. vulgare.* On the open slopes grew *A. filix-femina, B. spicant, D. austriaca, D. filix-mas, O. limbosperma* and *P. aquilinum.* Some *P. setiferum* and a plant of *D. X tavelii* were also noted and on a wet retaining wall along the roadside was a fine colony of *Phegopteris connectilis* – a rather surprising find for, although there was plenty of water for the fern, the habitat was an exposed one on an open hillside and the plants were small-growing. It seems surprising that this fern which is very far from common in the West Country should choose such a bleak home when there must be many much more confortable and suitable places in the area which know it not.

In a remote corner of Dartmoor in the Princetown area grows one of the only two known colonies of *Cryptogramma crispa* in the south west of England. This one consists of a single plant growing strongly in an old wall and has not changed in size during the years I have known it. How it comes to be there, so far removed from its nearest kin and continuing to survive happily as a single plant surrounded by many seemingly suitable walls which its spores refuse to colonise, no one can tell. A brief visit to pay our respects and satisfy ourselves that all was well with the plant was made by a few of us while others paid a visit to Wistman's Wood lying to the north of Two Bridges.

Our reunited party travelled across the Moor to the south-west to an interesting wood at the junction of the Meavy and Plym Rivers (20/56). Our parking place at the bridge proved to be a popular place for holiday makers but we quickly left them behind as we scrambled along the rocky wooded valley of the Meavy, rich in ferns; we recorded 13 species. *A. filix-femina* and *B. spicant* were very abundant, and further along we came to one part which seemed almost exclusively reserved by an extensive colony of *O. limbosperma.* Tucked away among the lush-growing fronds of this fern was a solitary plant of *O. regalis.* Another smaller one was seen near the car park and there are doubtless many more hidden away in this well-wooded and watered area. *D. austriaca, D. filix-mas* and *D. pseudomas* were common also *P. aquilinum,* and some *A. scolopendrium, A. trichomanes* and *P. vulgare* were noted on the steep rocky slopes, but what interested us most was the profusion of *H. tunbrigense* which covered all the rocks near the car park while in one place in the midst of it all was one small colony of *H. wilsonii.*

We made a short stop at Blackaton Cross (20/56) where in 1969 we found *I. lacustris* in one of the small lakes scattered around this china-clay mining district, but the previous night's rain had lifted the level of the lake between 2 and 3 feet and it was impossible to see the fern ally through the muddy water. We retraced our steps eastwards to Buckfast Church to make good the deficiencies of our exploration there on our rainy first day, but found that in spite of the uncomfortable weather conditions of that day we had indeed seen practically all there was to see. This time we were able to enter the quarry and found its walls well draped with the coloured dying fronds of *P. australe,* and high up beyond our reach more of the semilacerum and serratum forms, also more large clumps of *A. ceterach.*

On Saturday morning we left our centre but, before returning home, some of us went north to spend the day with the Adlams at Witheridge. Their garden visit, one of the items on Mary Potts' West Region meetings programme, had been arranged to coincide with the finish of our Dartmoor visit, and so we spent a most pleasant day with them, in glorious weather, a very enjoyable finish to a successful week. On the way there Martin Rickard and I combined the journey with a little hunting and discovered a lane a few miles from Bovey Tracey, which we regretted very much not having found earlier in the week. A wooded slope by the roadside had been partially cleared of trees and *P. setiferum* was growing abundantly over a large area, much of it straying well beyond the limits of normal variation for the species. In the short time we could spare we searched it hurriedly but even so found several plants which were worth collecting. We are both looking forward to a return visit in the hope that there are some first-rate varieties there awaiting collection. In this lane in the River Bovey valley to the north of Bovey Tracey (20/77) we recorded 12 species — *A. adiantum-nigrum, A. scolopendrium, A. trichomanes, A. filix-femina, B. spicant, D. austriaca, D. filix-mas, D. pseudomas, P. vulgare, P. setiferum, P. aquilinum* and some fine specimens of *D. X. tavelii.*

This field meeting can be regarded as one of our more successful meetings. Where on previous West Country visits we have logged species up to only the mid-twenties, this time we recorded 33, and this was only made possible by the energetic and enthusiastic leadership of Martin Rickard who had done some excellent "homework" in preparation for the meeting. Also we were greatly helped by having a fern botanist of Dr Chris Page's standing to solve many mysteries. My chief help was in the field of fern variation and never before at any of the Society's meetings have I been able to record so many interesting plants worthy of a place in the garden. The more notable ones include *A. filix-femina* 'Congestum Crispum', A.f.'Incisum Cristulatum', *A. adiantum-nigrum* 'Incisum', *D. austriaca* 'Incisa', *D.X. travelii* 'Tripinnatum', *P. australe* 'Semilacerum', *P. setiferum* 'Cristatum', *P.s.* 'Imbricatum', *P.s.* 'Rotundifolium'. We were using the new edition of the *Atlas of Ferns* for our recording and have been able to add some new records.

Kettlewell — 2/9 September. This meeting was another repeat visit — our last meeting at this centre was in 1967 when we had a very large turnout of 35 members and friends. This time, regretfully, the numbers were very much smaller and only 5 stayed for the whole week, John Barnett, Jimmy Dyce, Alf and Ray Hoare and Dr Chris Page. Others came for a day or a few days, Evangeline Borup, Nigel and June Hall, Nick and Eleanor Hards, Martin Rickard, Robert Sykes and Gwladys Tonge, and were welcome additions to the party. Although our Centre was given in the Programme as the Blue Bell Hotel in Kettlewell (Grid ref. 34/97), in the event it was the Racehorses Hotel, just over the road, but only the Secretary stayed there; the others found accommodation in the village or were camping. Our leader, John Barnett, who lives in the area, was staying at home.

We started off our first day on the Sunday in a drizzle of rain which fortunately stopped as we began the ascent of Moughton Fell (34/77), approaching it this time not by the more usual route from Horton in Ribblesdale but up the west side north of Austwick. This entailed a longer walk but it was much more varied and interesting. The chief attraction on the Fell was *Polystichum lonchitis;* one colony of fair size was known to us from past visits and we wanted to see how it was faring and also to find out if the fern extended further over the hill. We had hardly started to climb over the scattered limestone pavement when one solitary plant of large size was found, and during the time spent on the Fell we increased this number to about 20, some single plants and others in small colonies of up to 4 or 5 plants. It is thus obvious that *P. lonchitis* is well established in scattered colonies all over Moughton Fell. A short visit was paid to the previously known colony which was found to be flourishing in undiminished numbers.

We first visited Moughton Fell during the last excursion to Kettlewell in 1967 and a few short forays have been made during brief stays in the area over the intervening years, all of them made from the east side. We noted this time that, approaching the Fell from the opposite side, our records of ferns found were exactly the same as those made on the previous occasions, so I think we can assume that we have fully recorded the ferns in the area, 18 species in all – *Asplenium ruta-muraria, A. scolopendrium, A. trichomanes, A. viride, Athyrium filix-femina, Blechnum spicant, Cystopteris fragilis, Dryopteris austriaca, D. filix-mas, D. pseudomas, D. villarii, Gymnocarpium robertianum, Polypodium vulgare, Polystichum aculeatum, P. lonchitis, Pteridium aquilinum,* plus one addition this time, *D. X tavelii;* on the lower approaches *Oreopteris limbosperma* was seen. In the hollows on top of the Fell, from which the lime had been leached from the top layers of the soil, the noted lime-hater *B. spicant* grew happily but somewhat dwarfed, in large colonies. On the other hand, the lime-loving fern *P. aculeatum,* a common denizen of limestone pavement grikes, seemed to be quite scarce.

Returning through Austwick (34/76) we called on Mr Jim Lord to see his fern collection which contains a large number of very fine varieties. He has moved house since our last visit to him, but his collection is doing well in its new home with plenty of room to expand. A brief visit was also paid to another Austwick collection which is the subject of an article by John Barnett, appearing in this issue. It is now very much smaller than it would appear to have been in 1892 when it was described by B.H. Speight in his book *The Craven and North-west Highlands.* On our way home we paused by the roadside near Eshton (34/95) to admire a very fine colony of *Asplenium ceterach* and *A. ruta-muraria;* the former does not seem to be very common in the area and we came across it on only one other occasion.

On Monday, a fine dry day, we explored Wharfedale along the 4 to 5 mile stretch between Barden Bridge and Bolton Abbey (44/05), following the river all the way, going down along the west bank and returning up the other side. Along this very ferny, and in places very interesting, stretch of the river we noted 17 species, some of them in abundance, *A. ruta-muraria, A. trichomanes, A. filix-femina, B. spicant, C. fragilis, D. austriaca, D. filix-mas, D. pseudomas, D. X deweveri, G. dryopteris, O. limbosperma, Phegopteris connectilis, P. vulgare, P. aculeatum, P. aquilinum,* and the fern allies *Equisetum arvense* and *E. telmateia.* In places the terrain was quite jungly and early on we noted the luxuriance of the *E. arvense,* approaching *E. telmateia* in appearance. Large stretches of *P. aquilinum* also covered this part of the route. The *A. ruta-muraria* was on bridges, and on the walls around the Abbey where it was accompanied by *A. trichomanes.* The common ferns along the river were *A. filix-femina* and *D. austriaca,* both in great abundance, *D. filix-mas, D. pseudomas* and in places *O. limbosperma.* Half-way along our route the valley narrows to become almost a rocky ravine called The Strid, and the river is a series of fast rapids. The conditions here are ideal for ferns and most of the large species already mentioned were thriving strongly, as well as some of the smaller ones such as *G. dryopteris* and *P. connectilis* which cascaded in extensive colonies down the steep slopes in places. *P. interjectum* was also noted frequently and the occasional plant of *B. spicant,* and a pleasing find was a colony of *D. X deweveri* – but while one of its parents, *D. austriaca,* was present in quantity, we did not see *D. carthusiana* although the habitat in places was suitable for it. Near Bolton Abbey the valley opens out and the final part of our journey was very uninteresting fernwise. Very few ferns were seen on the Abbey walls, only some *A. ruta-muraria, A. trichomanes* and a fair quantity of *P. interjectum,* accompanied by the odd plant of *A. filix-femina* and *D. filix-mas.* On our return journey up the other side of the river we found the ferns to be similar to those on the east side but a few additions were made to the list. In one wet place were two small colonies of *E. telmateia* and further along some large-growing *P. aculeatum,* also a few small plants of *C. fragilis* growing in rock crevices.

On Tuesday, a day of rain, we met our leader on the Hebden/Pateley Bridge road, near his home at Appletreewick, and first we explored briefly one of the old lead mine workings which abound on the hills in the area (44/06). At the entrance to one mine *P. aculeatum* and *C. fragilis* were growing profusely in all the crevices. We moved on to Fountains Abbey near Ripon (44/26) and spent the next hour or so wandering around the ruins in a drizzle of cold wetting rain which did not help to inspire enthusiasm for fern-hunting. The number of species seen was small but some of them were in good numbers on the walls and ruined Abbey – *A. ruta-muraria, A. scolopendrium, A. trichomanes, A. filix-femina, C. fragilis, D. filix-mas, P. aculeatum* and some small plants of polypodium which we were unable to determine more precisely. We spent the rest of the day at John Barnett's small fern nursery on the outskirts of Harrogate, where he propagates a large selection of fern varieties from spores. For most of us this was one of the most enjoyable events of the week, for it enabled us to see many most interesting and beautiful varieties of a number of species, chiefly lady ferns, male ferns, polystichums and scolopendriums. John spends some of his time exploring in old and derelict gardens and other places over a wide area, searching for overlooked good fern varieties, and his wide range of first-rate plants results from the spores collected from the many good finds he has made.

A return visit was made to Moughton Fell on Wednesday morning to show Chris Page who was not with us on Sunday, the *P. lonchitis.* This time the approach was made from Horton in Ribblesdale and we found that the large limestone quarries here are encroaching further and further into the hillside, entailing a much longer detour round them to reach the summit of the Fell. On our return journey eastwards we made a stop near Stainforth to have a look at a beck and waterfall at Billinger Barns (34/86). Ferns abounded in numbers but not in species and only 6 were seen, some *B. spicant, C. fragilis* and *D. filix-mas,* and large numbers of *A. filix-femina, D. austriaca* and *P. connectilis.* From here we walked over fields to a nearby deep ravine through which the Cowside Beck rushes in a series of 5 very impressive and high waterfalls, called Catrigg Force (34/86). The Beck has dug down deeply into the hillside and is narrowly confined between perpendicular walls, making it impossible for us to penetrate very far and investigate the fern flora very closely. This area is on the Craven Fault where the limestones of the north give way to the acid ground on the south, and the habitats are very mixed. We had just left an acid valley at Bellinger Barns and now, a quarter of a mile distant, were in a dominantly limestone one which was excellent for ferns and the limestone species abounded. On the high walls *A. viride* was common, accompanied by *A. trichomanes,* some *A. ruta-muraria* was seen, and on the rock faces and in an area of scree where the ravine opens out *C. fragilis* flourished in abundance. All over the area *P. aculeatum* was seen in large numbers and *A. scolopendrium* was fairly common. Large-growing *A. filix-femina* was very much at home as was *D. filix-mas*, and in places *D. austriaca* and *D. pseudomas* were noted. A luxuriant colony of *P. interjectum* was perched on a high rock, growing vigorously with large fronds,and a clump of what was tentatively identified as *P. australe* grew near it.

We spent Thursday morning near Grassington and walked up the Hebden Beck Valley (44/06). This is a derelict lead mining area and as is usual in such places everything has been left just as it was when work ceased — spoil heaps, excavations, water channels, ruined buildings, concrete erections and rusting machinery, a bleak man-ruined landscape — for the passing years to soften, something which will take a very long time to achieve. It is an acid valley and ferns were few; only 8 species were noted. The whole area was being colonised by *P. aquilinum* and there was very abundant *D. pseudomas* in large clumps, but, most interesting to note, it had all been well-grazed by sheep. None of the other ferns seen had been touched and we wondered why, in this particular valley, the sheep had developed a liking for this particular fern. It was a great pity, for the abundance and strength of growth of the fern could have done much to redeem the dismal bleakness of the scene had it been allowed to grow without mutilation. The other ferns were *A. filix-femina, B. spicant, D. austriaca* and *O. limbosperma,* all quite common, and there were a few plants of *P. vulgare* on an old bridge, while *E. arvense* struggled through the hard ground among the ruins.

During a weekend meeting held in the Kettlewell area in 1973 we climbed up the Blue Scar near Arncliffe in Littondale (34/97), and among other things we found a very good crested variety of *A. viride,* firmly lodged in a very narrow rock crevice from which it was impossible to remove it. It was too early in the year (June) for ripe spores, so we promised to return to the spot at a time when we could collect some. But the years have passed and only now could we redeem that promise, so on Thursday afternoon, in a drizzle of rain, we set off to find our fern. I had been confident that my mental picture of the habitat could lead me back even after 5 years, but alas! my confidence was misplaced and although we searched long and carefully in every likely place, it could not be found. No rock formations seemed to agree with what I remembered, but of course the frosts of 5 winters could have something to do with it, or the drought of 1976 could have killed the plant. It was a big disappointment, for the cresting on the fern was superb and John Barnett was keen to acquire spores to build up a stock of the variety in his nursery. We found 10 species growing on the Scar, *A. ruta-muraria, A. scolopendrium, A. trichomanes, A. viride, C. fragilis, D. austriaca, D. filix-mas, D. villarii, G. robertianum* and *P. aculeatum.* On our last visit we noted additionally *A. filix-femina* and *G. dryopteris* but did not find *D. villarii.*

On our last day, Friday, we travelled north up Wharfedale and up Bishopsdale which from the map seemed promising territory with numerous becks on a north-west facing slope, parallel to and easily reached from the road. The reality proved otherwise and we continued on to West Burton (44/08), a small village where there is an impressive waterfall on the Walden Beck. This is a very ferny spot and on the slopes, the rocks, some marshy ground and a small stone bridge we noted 10 fern species – a few plants of *A. ruta-muraria; A. trichomanes* and *C. fragilis* in quantity on the rock walls close to the waterfall; *A. scolopendrium, D. austriaca, D. filix-mas, P. aculeatum* and a fine colony of *P. interjectum.* Some *E. arvense* was seen and in the marshy ground above the waterfall was a large colony of strong-growing *E. telmateia.* A short foray along the beck above the fall produced nothing more. After some discussion it was decided that it might be worthwhile after all to have a look at the south end of Bishopsdale so we returned to stop at the Kidstones Gill (34/98) which runs parallel with but drops away from the road in a deep ravine. This seemed promising ground, but our decision of the morning was fully confirmed, for we found the area to be acid on gravel clay and only 4 ferns were seen, *A. filix-femina, D. austriaca, D. filix-mas* and on some trees *P. vulgare.* On the roadside above, on a wall we found additionally *A. trichomanes.* A short distance to the south a track leads northwards across Cray Moss and Kidstones Fell and we drove along this for half a mile, as far as High Pasture (34/98). We were still off the lime and the few ferns seen on rocks along the road and on a scar of rough conglomerate grit were *A. ruta-muraria, A. trichomanes, C. fragilis* and *D. filix-mas,* all in very small numbers. Along a stream *E. arvense* and *E. palustre* were growing.

This finish to our week was not on a very high note, but we were grateful to John Barnett whose knowledge of the area led us during the week to many odd corners where ferns flourished and enabled us to see very much more than we would otherwise have done. And, again we had the fern botanical expertise of Dr Chris Page to help solve many problems. In all we recorded 23 fern species and 3 horsetails and were able to make a few, very few, new records for the *Fern Atlas.*

PTERIDOPHYTE RECORDS – 1978

Compiled by A.R. Busby

May this year saw the publication of the new *Atlas of Ferns of the British Isles,* giving those of us interested in fern distribution a slim and practical volume which can be taken into the field for checking our finds on the spot. It is hoped that by publishing new records annually members will be able to keep their copies up to date.

The *Atlas* omitted to explain the significance of the open and closed circles. Unless otherwise stated, open circles mark pre-1950 records and closed circles mark post-1950 records.

The new records are presented with the 100km square number and 10km square number followed by the name of the recorder, i.e. 100km/10km, Recorder.

A number of new records are still being received with the old 100km square letters instead of numbers. A table of the number equivalents for the letters is provided for future reference.

The following new records have been received up to 1st October 1978 and have been forwarded to the Biological Records Centre.

1.2 **Lycopodium clavatum** – 20/66, J. Webster.

3.1 **Huperzia selago** – 20/56, 20/57, 20/67, 20/77, G & M. Spooner. 20/69, G. Hawkins. 21/63, E. Howard. 22/77, 22/78, A. Chater. 31/10, D. Prowse.

4.1 **Diaphasiastrum alpinum** – 22/77, A. Chater.

6.1 **Isoetes lacustris** – 22/78, A. Chater.

7.3 **Equisetum fluviatile** – 20/29, 20/69, G. Hawkins. 20/45, 20/54, 21/54, J. Rees. 20/66, 20/68, G. & M. Spooner. 21/63, E. Howard. 22/77, A. Chater. 31/10, J. Keylock. 43/37, A. Willmot.

7.4 **Equisetum arvense** – 21/54, J. Rees. 20/67, M. Hickmott. 20/75, J.W. Dyce. 20/77, A. Side.

7.4 x 3 **Equisetum x litorale** – 20/78, 20/88, J.W. Dyce.

7.6 **Equisetum sylvaticum** – 20/69, M. Parkinson. 22/75, 22/77, A. Chater. 31/10, M. Turner. 43/13, 43/25, A. Willmot.

7.7 **Equisetum palustre** – 20/29, G. Hawkins. 20/45, J. Rees. 20/99, M. Stile. 43/19, A. Willmot.

7.8 **Equisetum telmateia** – 20/67, G. & M. Spooner. 33/32, A. Busby. 43/08, J. Hawkesford. 43/13, 43/43, A. Willmot. 22/34, 22/46, A. Chater.

9.1 **Ophioglossum vulgatum** – 21/91, M. Page. 31/20, G. Gush. 43/13, 43/44, A. Willmot.

9.2 **Ophioglossum azoricum** – 29/03, R. Corner.

10.1 **Osmunda regalis** – 20/56, G. & M. Spooner.

14.1 **Hymenophyllum tunbrigense** – 20/56, G. & M. Spooner. 22/79, A. Chater.

14.2 **Hymenophyllum wilsonii** – 20/56, 20/66, 20/68, 20/69, G. & M. Spooner. 20/78, J.W. Dyce. 22/78, 22/87, A. Chater.

16.1 **Polypodium vulgare** – 20/75, J.W. Dyce. 20/87, A. Side.

16.2 **Polypodium interjectum** – 20/75, 20/87, J.W. Dyce. 21/91, 32/88, A. Busby.

16.2 x 1 **Polypodium x mantoniae** – 43/17, A. Willmot.

16.3 **Polypodium australe** – 20/78, 20/87, J.W. Dyce.

17.1 **Pteridium aquilinum** – 21/54, J. Rees.

19.1 **Phegopteris connectilis** – 20/67, 20/68, G. & M. Spooner. 22/78, A. Chater. 34/86, J.W. Dyce.

20.1 **Oreopteris limbosperma** – 22/78, A. Chater. 43/37, 43/16, A. Willmot.

21.1 **Asplenium scolopendrium** – 21/54, J. Rees. 32/48, 32/98, 32/99, A. Busby. 43/45, A. Willmot. 52/66, 62/33, E. Hyde.

21.2 **Asplenium adiantum-nigrum** – 21/54, J. Rees. 32/49, A. Busby. 43/45, A. Willmot. 62/13, E. Hyde.

21.4 **Asplenium cuneifolium** – 25/19, A. Stirling.

21.5 **Asplenium billotii** – 20/57, 20/67, G. & M. Spooner.20/78, J.W. Dyce.

21.6 **Asplenium marinum** – 21/54, J. Rees.

21.7 **Asplenium trichomanes, agg.** – 21/54, J. Rees. 32/98, 32/99, 33/90, A. Busby. 43/13, 43/36, 43/37, A. Willmot. 62/13, 62/24, E. Hyde. 43/38, A. Willmot.

21.8 **Asplenium viride** – 43/25, M. Torry.

21.9 **Asplenium ruta-muraria** – 20/75, J.W. Dyce. 21/54, J. Rees. 32/99, 42/09, A. Busby.

21.10 **Asplenium septentrionale** – 22/68, A. Chater.

21.11 **Asplenium ceterach** – 20/54, J. Rees. 20/68, G. & M. Spooner. 32/48, A. Busby. 62/59, R. Briggs. 43/32, A. Willmot.

22.1 **Athyrium filix-femina** – 21/54, J. Rees. 22/78, A. Chater.

24.1 **Cystopteris fragilis** – 22/69, 22/78, A. Chater.

26.2 **Polystichum aculeatum** – 20/45, J. Rees. 20/57, G.& M. Spooner. 20/78, J.W. Dyce. 21/63, M. Tulloh. 32/48, A. Busby. 43/06, A. Willmot.

26.2 x 3 **Polystichum x bicknellii** – 20/77, 20/87, J.W. Dyce.

26.3 **Polystichum setiferum** – 20/69, D. Wigston. 20/75, J.W. Dyce. 43/33, A. Lee.

27.1 **Dryopteris oreades** – 35/42, M. Coulsen.

27.2 **Dryopteris filix-mas** – 20/95, J.W. Dyce. 21/54, J. Rees. 43/24, 43/27, 43/36, A. Willmot.

27.3 **Dryopteris pseudomas** – 20/45, 20/54, 20/69, 20/87, G. & M. Spooner. 21/54, J. Rees. 22/34, A. Chater. 32/48, 34/86, A. Busby. 32/90, 34/86, 44/06, J.W. Dyce. 43/37, A. Willmot.

27.5 **Dryopteris aemula** – 20/57, 20/68, G. & M. Spooner, 30/18, J. Knight.

27.8 **Dryopteris carthusiana** – 20/68, J.W. Dyce. 43/17, B. Fox. 43/13, 43/57, A. Willmot.

27.9 **Dryopteris austriaca** – 20/95, G. & M. Spooner. 21/54, J. Rees. 21/91, A. Busby. 43/26, A. Willmot. 62/33, E. Hyde.

27.9 x 8 **Dryopteris x deweveri** – 20/68, 44/05, J.W. Dyce. 43/34, A. Willmot.

28.1 **Blechnum spicant** – 21/54, J. Rees. 34/86, J.W. Dyce. 33/98, A. Willmot.

29.1 **Pilularia globulifera** – 10/72, T.S. Crosby.

30.1 **Azolla filiculoides** – 21/91, M. Stile. 23/70, K.M. Stevens. 31/01, P. Hill. 43/35, A. Willmot.

The National Grid 100km squares showing letter identification and the equivalent numbers

NA 09	NB 19	NC 29	ND 39			
NF 08	NG 18	NH 28	NJ 38	NK 48		
NL 07	NM 17	NN 27	NO 37			
	NR 16	NS 26	NT 36	NU 46		
		NX 25	NY 35	NZ 45		
		SC 24	SD 34	SE 44	TA 54	
		SH 23	SJ 33	SK 43	TF 53	TG 63
	SM 12	SN 22	SO 32	SP 42	TL 52	TM 62
	SR 11	SS 21	ST 31	SU 41	TQ 51	TR 61
SV 00	SW 10	SX 20	SY 30	SZ 40	TV 50	

	HP 69
HT 58	HU 68
HY 57	HZ 67

The number sequence for 10km squares

09	19	29	39	49	59	69	79	89	99
08	18	28	38	48	58	68	78	88	98
07	17	27	37	47	57	67	77	87	97
06	16	26	36	46	56	66	76	86	96
05	15	25	35	45	55	65	75	85	95
04	14	24	34	44	54	64	74	84	94
03	13	23	33	43	53	63	73	83	93
02	12	22	32	42	52	62	72	82	92
01	11	21	31	41	51	61	71	81	91
00	10	20	30	40	50	60	70	80	90

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The publication *Instructions for Recorders*, compiled by John Heath and Diane Scott, is available from Biological Records Centre, Institute of Terrestial Ecology, Abbots Ripton, Huntingdon PE17 2LS.

THE FIRST WOMAN PTERIDOLOGIST

D. E. Allen

In the course of piecing together the very fragmentary records of the old Botanical Society of London (the ancestor of today's B.S.B.I.), I recently came across reference to some impressive-sounding contributions on ferns made in the years around 1840 by a Mrs Riley, a name hitherto unknown. This is remarkably early for anyone to have been specialising in ferns, let alone a woman. It is even more remarkably early for a woman to have been contributing to the proceedings of a national scientific society – even though she would appear never to have attended the meetings in person. Indeed, it seems very possible that she was the first member of her sex to achieve such a distinction in Britain. In view of this it seemed worth making a special attempt to find out more about her, and with the invaluable assistance of Mr B. R. P. Playle and his colleagues at the National History Museum, Wollaton Hall, Nottingham, it has proved possible to put together the following account.

Margaretta (otherwise Meta) Hopper was born on 4 May 1804 in Nottingham, where her grandfather, as she was fond of recalling in her later years, had entertained the Young Pretender on his march south at the time of the Forty-five. At the age of twenty-one she married John Riley, land agent to the Montagues at Papplewick, a village six miles south of Mansfield, where she was to live for the whole of the rest of her life. The marriage was childless but, as if in compensation, she and her husband shared a number of enthusiasms. Foremost among these was the collecting, cultivating and classifying of ferns.

When or how this interest began is far from clear. In a paper, "Remarks on the British Ferns", an abstract of which appeared in both the *Proceedings of the Botanical Society of Edinburgh* (P.55) and the *Gardeners' Chronicle* (P.686) in 1841, John Riley mentions having gathered all the British species of *Cystopteris* and having had them in cultivation 'for many years'. She in turn, in a note in the *Phytologist* in 1841 (vol. 1: 94), arguing for the distinctness of the British *Thelypteris* species, puts a wifely gloss on this: 'We have cultivated them side by side for years'. If these words are to be taken literally, then their fern-collecting must have dated from not long after their marriage – an exceptionally early period for anyone to have been specialising in the native, hardy species.

John Riley was elected to the Botanical Society of London in May 1838, evidently on the strength of a communication which he had recently sent to it on the subject of hybridity of ferns, 'Which excited much interest' *(Ann. Nat. Hist., Ser. 1: 156).* It seems likely that his wife joined as well in the following year (unfortunately the membership records for that period are missing), for on 1 November 1839 a paper was read before the Society the authorship of which two separate sources, the *Annals of Natural History* and the *Athenaeum,* agree in attributing to her unambiguously. Entitled "On the British genus *Cystea*" this discussed the four species that she and her husband recognised as constituting what we now know as *Cystopteris.* One month later it was announced that she had donated to the Society a complete dried collection of every species and variety of fern represented in the British flora.

Hard on the heels of this, in the spring of 1840, there arrived at the rooms of the Society a comprehensive monograph. Variously attributed to one or other of them, but surely their joint work in any case, this was of such elaborateness that the reading of it had to be spread over three meetings in succession. According to the *Annals of Natural History* (Ser. 1, 6: 147-8) it embodied the results of growing every British species side by side and observing 'with great care and attention' their differences. This was presumably the 'book' on ferns which she liked to think of in later years as having won her her election to the Society (according to her obituary in the *Nottingham Daily Express),* though in reality that was something probably far more easily come by than she innocently supposed. In the year following a 29-page octavo volume did indeed appear, in the name of her husband: *A Catalogue of Ferns, after the Arrangement of Sprengel, to which is added a synoptical table of C. B. Presl's arrangement of genera.* If this was substantially an offshoot of the monograph just previously delivered as a paper, then it would appear that Mrs Riley has some claim to be considered its co-author.

Meanwhile, in August 1840, a further paper of hers had been read before the Society: "On growing ferns from seed, with suggestions upon their cultivation and preparing the specimens". No abstract of this, unfortunately, has been preserved: we know the title alone from the brief report of that meeting in the *Athenaeum.*

Mysteriously, that is the last we hear of her in the botanical literature of the period. Her husband, too, wrote no more. Maybe he felt that Newman's *History of British Ferns,* which had broken on the botanical scene that very year with incomparable *eclat,* had irretrievably stolen their thunder. Maybe, more simply, he felt that all he had to say had by now been said. At any rate now he was content to sit back and enjoy some recognition, as more societies elected him to membership — the Botanical Society of Edinburgh in 1840, the Linnean in 1843 — and two bestowed on him the nebulous office of Local Secretary for Nottinghamshire.

On 14 December 1846, while on a visit to York, he suddenly died, having barely reached the age of fifty. Behind him he left a herbarium of some 2,200 sheets, mostly foreign sets, which was probably sold and dispersed (for it cannot now be traced). He also left a superb collection of living ferns, allegedly comprising 250 species, which, according to E J Lowe, passed into the hands of a keen fellow-grower, a general practitioner in Lambeth, James Forbes Young. What became of this after Young's death in turn, in 1860, remains unknown.

Margaretta Riley's widowhood was to last not far short of half a century, for she was to live on to the advanced age of ninety-five, eventually dying of bronchitis on 16 July 1899, after just a fortnight's illness. By then she had long since become one of the foremost personalities of the neighbourhood. 'A picturesque and highly entertaining old lady.......... held in the greatest esteem' was how the local paper chose to describe her in reporting her death and funeral. Vivacious to the end and with an extraordinarily retentive memory, she would love to astound her listeners by recalling in detail the wars against Napoleon and the actual announcement of the victory of Waterloo.

History, philosphy and politics delighted her all her life. In 1884 she contributed a chapter on the history of her village to the second series of J P Briscoe's *Old Nottingham:* it is as detailed and scholarly as one would expect. At the age of fifty she took up watercolour painting, pursuing this with distinct success till laying it aside at sixty-eight. She also wrote poetry and contributed articles on social and religious topics to a variety of magazines. A small book, The *Duties of Woman,* and a club she established locally to encourage thrift testify to the strength of her principles.

To gardening and to natural history, we are assured, she continued to be devoted — though there is no evidence that she supplied records for any of the successive Floras of her county.

Nor is it clear whether her interest in ferns survived her husband's death. That the Botanical Society of London was able to persuade her to renew her membership a few months after that event is possibly indicative, but against that must be set the much more telling fact of her disposal of his collections. E J Lowe, in various of his works, frequently acknowledges her help and thanks for her specimens, but the deeds he refers to may have long preceded their mention in print. She had cousins named Lowe, so the two of them were possibly related, and this might have constituted a more than ordinary reason for her fern work to receive commemoration.

Her will, now at Somerset House, reveals that she was a person of some wealth. Rather over £27,000 was a comparatively large sum to leave for those days — and five servants were among those to whom she left legacies. True to character to the last, her one charitable bequest was to the Governesses' Benevolent Institution.

FERNS IN SOUTH AFRICA

Martin Rickard

In the 1977 Bulletin Philip Coke described the ferny side of his recent visit to Australia. At about the same time I made a short visit to South Africa and I too investigated the local ferns.

Unlike Philip, I didn't have the benefit of a recently published book on the local ferns, but I was extremely lucky in that I was able to borrow a copy of Sim's *Ferns of South Africa* from Professor Schelpe of Cape Town University, who is, I believe, the only member of the B. P. S. in the Western Cape Province and to meet him was a must if at all possible. Fortunately, he was in Cape Town during my stay and when we met he was able to suggest good fern country to search. The real classic habitat locally is apparently Skeleton Gorge — a deep wooded ravine on the east side of Table Mountain. A description of my visit to this ravine, therefore, will probably give a good idea of the local pteridophyte population.

Skeleton Gorge is immediately above Kirstenbosch — the world-famous botanic garden full of Proteas and other species rather too "exotic" for my "temperate" eyes! Ferns here are relatively few but the collection of the tree fern *Alsophila dregei* is thriving. There is also a small fern grotto but in no way could this equal the "real thing" towering above in Skeleton Gorge on Table Mountain itself.

So I was quickly on my way to the "Smut's track" which leads up the gorge. Near the bottom, in wet spots, grows marsh fern, *Thelypteris confluens,* but apparently identical to our marsh fern, while in the drier situations there is *Pteridium aquilinum, Mohria caffrorum, Pellaea pteroides, Cheilanthes capensis, Histiopteris incisa, Asplenium lunulatum, A. adiantum-nigrum* and *A. aethiopicum.*

Shortly after crossing the Contour Path a small waterfall provides an ideal habitat for *Hymenophyllum tunbrigense*, morphologically identical to UK material. However, other colonies of this fern from other localities where it grows in running water on near vertical slopes attain frond lengths of six inches or more. These forms are completely different from UK material both in form and in their choice of habitat. In none of the 30 or so localities where I have seen *H. tunbrigense* growing in the UK was it growing in water. It is in fact hard to believe that this large form is the same species.

Down by the stream around this point are the three common blechnums, *B. capense,* *B. punctulatum* and *B. australe; Todea barbara* also grows about here, and is a common fern in damp spots in the mountains of the Western Cape Province. Further up by the side of the track I was pleased to see *Pleopeltis macrocarpa*, a polypodium type epiphyte, and nearby, seemingly intent on confusing me, was the superficially similar *Elaphoglossum angustatum.*

Soon after this point the gorge really becomes just that and to progress any further it is necessary to climb a cliff with the aid of chains permanently fixed to the rock. Associated with the deeper ravine, here humidity is much higher and the fern flora correspondingly much richer. The Cape tree fern *Alsophila capensis* is frequent and two beautiful new filmy ferns appear, *Hymenophyllum capense* and *H. marlothii* – the latter I believe in its type locality. Also growing about this area are *Hypolepis sparsisora, Pteris dentata,* (both rather boring!), *Thelypteris bergiana* and *Blechnum attenuatum.*

From this point no new species were observed until the open hillside was reached. Then at the shady base of an open cliff *Gleichenia polypodioides* was noted, and shortly above that in full sun more or less on the plateau of Table Mountain a few plants of *Rumohra adiantiforme* flourished. This was at an altitude of about 740m – does this mean this species is hardy? Following Professor Schelpe's instructions I moved north from here towards the top of Window Gorge and found *Elaphoglossum conforme* while searching for *Hymenophyllum wilsonii.* The hymenophyllum eluded me here although I did find it later in Disa Gorge on the Heldeberg Mountain above Somerset West. This species is to me, as with some forms of *H. tunbrigense,* very different from U.K. specimens – but I would hate to have to try and "key out" the differences! The most interesting plant here was a strong colony of *Blechnum tabulare.* This is not the hardy species cultivated under this name in many British gardens. The true plant as seen on Table Mountain has very leathery fronds with smooth edges to the pinnae which in turn taper towards the base of the frond......but the clincher is the mode of growth; true *B. tabulare* has an erect caudex and in its native hills assumes the stature of a tree fern – with a trunk up to four feet high. The discovery of *B. tabulare* brought my records for the day up to 27 – not bad for an area described as fernless by a lady companion on the flight into Cape Town!

Other species of damp or shady places which I didn't see in Skeleton Gorge but recorded elsewhere were:– *Lycopodium cernuum, L. carolinianum, Elaphoglossum acrostichoides, Pellaea viridis, Polystichum lucidium, Adiantum aethiopicum,* (distinguished from *A. poiretii* by the fact that on sterile pinnules the veins end in the marginal teeth) and one or two unidentified odds and ends!

Another aspect of the local fern flora is the xerophyte element well developed in the sunny open hills. Species of this type I saw were:– *Schizaea pectinata, Ceterach cordatum, Pellaea hastatum, Cheilanthes hirta, C. parviloba* (a sticky species), *C. contracta* and *C. multifida.* I should add that a must for any fern lover in the area, particularly if he is lazy or in a hurry!, is a visit to Stellenbosch University Botanic Gardens. Here the tree ferns and Platyceriums alone more than justify a visit.

In conclusion it is interesting to note the affinities between the South African and Australasian fern flora. Several species are identical (e.g. *Todea barbara* and *Rumohra adiantiformis*) and others are obviously closely related (e.g. *Hymenophyllum capense/H. rarum* or *Gleichenia polypodioides/G. dicarpa).*

A MEETING WITH CHINESE PTERIDOLOGISTS IN PEKING

A C Jermy

Between 2nd and 13th September 1978 I had the pleasurable experience of visiting the Peoples' Republic of China to meet Professor Ren-Chang Ching, his students and colleagues who are studying pteridophyte taxonomy.

I had requested a visa to discuss amongst other matters problems in the taxonomy of *Dryopteris* in Eastern Asia, the state of pteridophyte research in China and future co-operation between British and Chinese botanists. The Chinese Academy of Sciences supported my application and was my host in Peking under an interchange of scientists programme with the Royal Society of London.

I travelled by train from Hong Kong to Kwangchou (Canton). Here I was met by Mr. Chu-Hao Wang, a pteridologist and specialist in Aspidiaceae s.s., and an Academy interpreter, Miss Lee. Miss Lee's function was solely administrative arranging my further journeys, as Mr.,Wang spoke excellent English, having been to school in Hong Kong.

I visited the South China Botanical Institute herbarium and the Botanical Garden on the outskirts of Kwangchou. This is a beautifully landscaped garden begun in 1958, in which lakes and tea-houses (for official visitors, as the public are not allowed in unless in organised parties) are found in a parkland of conifers including many chinese endemics. There is a large shade-house for ferns and here in this sub-tropical climate plants like *Angiopteris fokiensis, Asplenium nidus* (which the Chinese like to segregate as *Neottopteris nidus), Drynariopsis heraclea* and *Brainea insignis* can thrive out of doors.

The following day a visit was arranged to a hilly forest park, where *Pinus marsoniana* is planted amongst *Crotoxylon lagaestroemium, Rhus sinensis* and *Acacia confusa,* and which is used by the people of Kwangchou for picnics and walks. Here along the paths grew *Adiantum*

Professor R.C. Ching at work on the Flora of Tibet, 8 September 1978

Phot: A C Jermy

Phot: A C Jermy

Chinese pteriodologists (with addresses and research interests):

1 Ling Yon-Sin, Institute of Botany, Academia Sinica, Peking. (*Adiantum, Azolla*)
2 Wu Shiew-Hung, South China Institute of Botany, Academia Sinica, Kwangchou, Kwangtung. (*Pteris;* Fl. Kwangtung)
3 Shiu Pei-Shi, Biology Department, Shanghai Teachers College, Shanghai. (*Thelypteridaceae*)
4 Shieh Yin-Tong, Biology Department, Northwest China University, Wukun, Shensi. (*Athyriaceae*)
5 Wang Chu-Hao, South China Institute of Botany, Academia Sinica, Kwangchou, Kwangtung, (*Aspidiaceae;* Fl. Kwangtung)
6 Kung Shien-Shin, Szechwan Institute of Forestry, Chengtu, Szechwan. (*Polystichum;* Fl. Szechwan)
7 Shing Kung-Shia, Institute of Botany, Academia Sinica, Peking. (*Cyrtomium,* Gymnogrammaceae)
8 Wu S-K, Yunnan Institute of Botany, Academia Sinica, Kunming, Yunnan. (*Dryopteris*; Fls. Tibet, Yunnan)
9 Wang Chung-Ren, Institute of Botany, Academia Sinica, Peking. (*Athyrium*)

Not present: Chu Wei-Ming, Biology Department, Yunnan University, Kunming, Yunnan, (*Allantodia;* Fl. Yunnan). Lin Lai-Kwan, Biology Department, Fukien Teachers College, Foochow, Fukien. (Fl. Fukien).

flabellatum, Blechnum orientale, Cheilanthes tenuifolia, Lindsaea orbiculata, Pteris semipinnata, P. vittata and *Woodwardia harlandii.* Later that day I flew to Peking with Mr. Wang where I was met by Professor T.T. Yu, Deputy Director of the Botanical Institute and Mr. Kung-Shia Shing and two interpreters.

During the next seven days I visited the laboratories and herbarium of the Institute. The staff there were keen to hear what lines of research we were pursuing in Britain. On two occasions I spent an afternoon with Professor Ching, who works at home, being immobilized with a frozen hip joint; he lives with his son and his family, all of whom were charming hosts during my visits. Ching is actively writing (with Mr. Wu S-K) a fern flora of Sino-Himalaya (Tibet). He showed me his most recent major work — a fern flora of Kiangsu Province (published by Bot.

Inst. Kiangsu Prov., Nanking; 1976). Ching has just published a checklist of the families and genera of Chinese ferns (Act. Phytotax. Sin. 16 (3): 1–19; 1978) and he is master-minding the national fern Flora mentioned below.

Flora Reipublicae Popularis Sinicae, when complete, will extend to 80 volumes and contain 24,000 species; it is being compiled by staff of 8 Academy Institutes and by others at universities throughout China. Five of the volumes will cover the ferns and, I was told, should be published by 1985. Only one has so far been published (Vol. 2 Ophioglossaceae-Oleandraceae, 406 pp; 1959). It is in chinese of course, but we must hope for a transalation soon.

There are 11 active pteridologists working on the *Flora;* nine came to Peking to meet me. They have a big flora to work (over 2000 spp.) but look to the time when they can develop cytological and biosystematic studies. In the next three years they plan to introduce living ferns into several botanical gardens. They need to enrich their large herbaria (100,000 chinese fern specimens in Herb. Peking) with material from elsewhere, especially S.E. Asia, and welcome specimens from foreign institutes. Working so long in isolation there is a tendency to make too many new species. In addition, work on regional Floras progresses. Those published are of Canton, Hainan, Kiangsu, N.E.China and Tsinghai; those in preparation are Fukien, Kwangtung, Szechwan, Tibet and Yunnan.

I returned from Peking by train to Kwangchou (a 33-hour trip full of interest) and spent another day at that delightful garden. I met there Mr. Chen-Zhi Tang who will spend 2 years at the British Museum (N.H.), Kew and Newcastle University as from early 1979, in order to learn fern taxonomy and cytology.

Space does not allow me to elaborate further; my time in China so admirably organised by my interpreters Miss Fung and Mrs. Wang included visits to the Summer Palace, Forbidden City and the Great Wall at Chinlung Chao where incidentally I found *Selaginella sanguinea* a common weed. Everyone that I met was charming and keen to exchange ideas and information and I am grateful to them all. In particular, I would like to thank Professors Ching and Yu, and Wang Chu-Hao who was a constant and delightful companion throughout my trip.

UNDERGROUND FERNS

Nigel Hall

Fern enthusiasts are not unduly surprised at often unusual places in which ferns manage to thrive. I had, however, certainly not anticipated finding ferns growing nearly two hundred feet in and down a mine. The mine, one of the Blue John mines around Castleton in Derbyshire, has for some time had electric lighting to illuminate higher interesting places as well as providing a dim overall illumination. The lighting, in the form of floodlights, while not particularly bright when it reaches the walls, has been sufficient to encourage vegetative growth in several places. In one spot, what appeared to be a large clump of *Athyruim filix-femina* dominated a damp overhang. This is the only place where the ferns reached a reasonable size, the fronds being 12" – 18" long. Identification is only tentative as the plants were growing high above my head and the light was poor. The lights are on for up to nine hours a day nearly all the year round. The walls are, of course, damp and in this mine very limey. It is most likely that the spores had been brought down on the clothes or in the lungs of visitors to the mine which is a popular tourist attraction. Apart from the clump already mentioned, only sporelings (unidentifiable) and moss seem to grow, and as one goes deeper into the mine only the moss appears to survive.

MIMICRY IN THE FERN WORLD

Kay M Stevens

I was interested to read the article written by C N Page, of the Royal Botanic Garden, Edinburgh, entitled "An Ecological Survey of the Ferns of the Canary Islands", which appeared on page 297 of the *Fern Gazette,* Vol. 11 part 5; that is, I was interested to see the photograph of *Asplenium hemionitis* and to read that this fern resembles ivy, *Hedera,* with which it often grows. This, I think, confirms my belief that ferns often mimic other plants, both in and out of the fern world, presumably for effective camouflage and protection. They appear to mimic the dominant plants of that particular station in which they are growing.

A few years ago I was fern hunting at Wootten in the New Forest in Hampshire when I was suddenly struck by the mimicking of *Dryopteris carthusiana* and *Athyrium filix-femina,* the latter being the dominant plant. They were growing in a swamp in thick forest. I again saw *D. austriaca* and *A. filix-femina* playing the same trick in the chines of the Bournemouth area. I gathered some fronds of the ferns from Wootton and sent them as fresh material to Jimmy Dyce, asking him to give me his opinion. He replied saying he would have to dwell on the subject further and discuss it with other "fernologists", seeking their opinion. I again asked Clive Jermy if he had ever seen the mimicking of ferns during his field work. He told me that he had done so, while looking for a fern he wanted to find on walls on an island abroad.

Hugh Corley and I, when searching for an old record of *D. X remota* in the woods bordering on Loch Lomond in Argyllshire, were often "taken in" by bracken resembling exactly some member of the dryopteris family. The late Mrs Mary Richards and I were twice "foxed" by *Polystichum aculeatum var. cambricum (lonchitioides),* once at Cwm Aran, Cader Idris, and once on the high rocks at Penant Dovey. Mary really thought we had re-found the lost (or extinct) *P. lonchitis,* and in her usual enthusiastic manner screamed at me, saying "Kathleen, there it is, *P. lonchitis* – go up to it"! Of course, it turned out, needless to say, to be merely *var. cambricum* with an especially long narrow frond, maybe mimicking *P. lonchitis.*

At an early age when we ran into the countryside to explore, we learnt that the white dead nettle mimicked the stinging nettle, merely because we realised one would sting while the other would not!

John Raven and Max Walters, in their book *Mountain Flowers* published in 1956 in the *New Naturalist* series, definitely saw mimicry on their trips to mountains, and I quote from page 104, "The most celebrated station for *Lloydia serotina* is in the Devil's Kitchen, where as is so often the case with rare plants, it is effectively comouflaged by a profusion of a superficially similar flower, the common wood anemone, *Anemone nemorosa.*
Peter Benoit often points to the fact that *Salix herbacea* resembles bilberry, and *Stellaria nemorum* resembles dog's mercury, *Mercuralis perennis,* among which it grows.

I shall be glad to hear from anyone who is of the same opinion as myself re mimicry in the fern world and has noticed this habit when field botanising.

Editorial comment – This article by Kay Stevens brings to mind some of our own experiences with mimicry. A classic example known to some of us in the northern mountains is the propensity for dwarf stunted plants of *Cystopteris fragilis* growing in rock crevices to resemble so closely *Woodsia alpina* growing on the same rocks as to be positively misleading for the inexperienced hunter. Another good illustration is *Dryopteris pseudomas* masquerading as *D. oreades (abbreviata)* when growing on rocks and in screes where it adopts the same habit of developing a multitude of small crowns with concave fronds densely scaled – only that tell-tale black spot at the base of the pinnae gives it away. In parts of the country where *D. aemula* grows or seems likely to grow, a form of crispy pinnuled *D. austriaca* can deceive, and in the past many false records for *D. aemula* originated from this similarity. Very small stunted *Athyrium filix-femina* growing in rock crevices can look exactly like *C. fragilis,* and to return to Kay's example of *Polystichum aculeatum* and *P. lonchitis,* we can recall more than one occasion on limestone pavements in the north of England when the deception was so good that quite lengthy discussion was required before all members of the party could be convinced that we had **not** found a new locality for the rare fern. From one of these localities there are old records for *P. lonchitis,* but we were unable to find any and are quite certain in our own minds that the publishers of the records were misled by the mimicking *P. aculeatum.* Even our common bracken can mislead at times and there is an interesting article in one of the early issues of the Gazette (Vol. 2 (19) p. 180) on the subject by C B Green, reinforced by editorial comments by C. T. Druery.

FERN COLLECTING IN COSTA RICA

Judith I Jones

The Southern California Chapter of The Palm Society arranged this two week tour of Costa Rica following the biennial meeting in San Diego, California. Unfortunately, their choice of a travel agent was solely profit-oriented and our domestic arrangements were a horrible nightmare of inedible food, slummy hotels, and a recalcitrant bus driver who required strong-arm tactics to get him to stop for collecting purposes and not at the next cantina for liquid refreshment. But all formal complaints having been sent off to the people responsible we'll put that to rest and re-live only the glorious adventure that travelling and collecting was in this garden paradise of Central America.

We were fortunate in being able to experience all three climatic zones within the five provinces through which we travelled, (San Jose, Cartago, Puntarenas, Limon, and Heredia). The coastal climate is hot and humid below 900 metres, temperate between 900 and 1500 metres, and above 1500 metres is the colder zone where frosts are frequent. Since the intent of the tour was to observe palms in their native haunts the itinerary concentrated on those areas rich in palms but they were also abundant with ferns, bromeliads, orchids and a host of other tropical plants.

The major problem in writing of my fern collecting experience in Costa Rica is that the only published work on the flora of this country was last done in the 30's and does not include the ferns. So identification of those plants and spore which do survive and proliferate may be quite a lengthy process of library research. Therefore, I will devote most of my space to a description of Las Cruces Tropical Botanic Garden near San Vito de Java. It's founder and director, Robert Wilson, identified as many ferns as possible and also gave me a 1974 compilation by Bruce McAlpin. Many of the names on the list are tentative while plants native to Costa Rica were not distinguished from those collected in other areas of Central America and established in the Garden. The one of a kind ferns were taken back to the States for further study with the promise that future spore of these be shared with the Garden.

Las Cruces is a tropical American plant species reserve dedicated to collecting and perpetuating plants of the wet tropics and preserving species threatened with extinction. Robert and Catherine Wilson's Finca Las Cruces was deeded to the Organization for

Tropical Studies in 1968, six years after its inception, in hopes of receiving the financial stability to continue to foster and encourage basic research in tropical botany and horticulture. The late Stanley Smith, horticultural philanthropist, provided the impetus to develop this private collection into a botanical garden and generously financed the building of the field station for the use of horticulturals and other scientists.

The Garden is located in the mid-elevation tropical rain forest of Southern Costa Rica in a climate that has been called perennial springtime. Annual rainfall is about 4,000 mm with a dry season from January through March, often with little or no rain for periods of several weeks. Temperatures range from 21° C to 26° C in the daytime, with minimum readings of 16° C to 17° C at night.

The topography is characterized by steep slopes bordering the Rio de Java, and clouds spilling over the ridges are important in maintaining abundant epiphytic growth on the trees. Native epiphytes include many gesneriads, aroids, peperomias, orchids, bromeliads, and ferns. The Garden specializes in obtaining as complete collections as possible of a number of tropical plants. Well represented are aroids, ferns, palms, gesneriads, bromeliads, and melastomes, as well as research collections of heliconias, marantas, and gingers.

July is the height of the rainy season, yet as our bus pulled past the spectacular bromeliad banks which greet incoming visitors we knew a little mist would hardly dampen our ardour for an immediate trek before dinner. We started out under the direction of Mr. Wilson through the more formal area of pan-tropic accessions, delighting in the diversity of palms beginning with two pinnate-leaved *Bentickia* species from India, the unusually showy-flowered *Polyandrococos caudescens* from Brazil, an impressive stand of *Trachycarpus nana (takil),* a short robust fan palm of the Western Himalayas, the magnificent blue-green fan palm of Madagascar, *Bismarkia nobilis,* and my special favourite, the graceful tousled Tropical American *Aiphanes caryotaefolia.*

Impressive as all these palms were to a neophyte palmophile I was most ecstatic when we trooped under the broadleaf evergreen canopy and encountered a sumptuous spread of *Nephrolepis cordifolia* 'Duffii'. *Nephrolepis* was well represented throughout the 30 hectares of developed garden with about seven species and twice that in cultivars. One of the most impressive is *Nephrolepis pendula* with its long attenuate fronds. The tree ferns were numerous and unlabelled for the most part but I can cite the genera represented, according to McAlpin's list, as *Cibotium, Cnemidaria, Cyathea, Dicksonia, Lophosoria, Nephelea, Sphaeropteris,* and *Trichopteris.* Of all these only *Sphaeropteris* did not include species native to Central America. I have labelled spore samples of *Cnemidaria choricartha, Cyathea divergens,* and *Cyathea mexicana,* nestled in with those inevitable envelopes with a big question mark followed by the collection point and description.

There are some 35 species of *Selaginella* found on the shadier slopes as groundcover to help keep the soil, with its often attendant diseases and bugs, from splashing up on the plantings. Colourful numbers of gesneriads are also used for this purpose.

Asplenium, Blechnum, Ctenitis, Diplazium, Polypodium, Pteris, and *Thelypteris* were well typified by numerous native species but most were only generically recognizable to one versed in the temperate species. There were innumerable ferns outside my range of experience and study that I could only assign a common denominator to and bring back a specimen or frond for further investigation.

But there were such delights as finding gorgeous stands of *Osmunda regalis* as a flourishing native. One fern I was very taken with was the spiny scrambling *Odontosoria* *gynmogrammoides.* I also spotted its dark-brownish zig-zag rachis and delicate quadripinnate fronds along lowland sunny banks later on in the trip. Sunny banks in the garden were strewn with *Blechnum occidentale,* with its striking new reddish growth, the silvery-sheened *Pityrogramma calomelanos,* and a powdery white beauty, *Pityrogramma ferruginea.*

The greenhouses were a treasure trove of tropical plants beginning with an enormous *Platycerium andinum* (the only American staghorn) mounted at the entrance and then, just inside, *P.* '20th Street' with its wide slightly fuzzy fronds. Mr. Wilson was most generous with his spore and I came away with *Adiantum macrophyllum* and three other *Adiantums* which I have tentatively identified as *A. latifolium, A. fructuosum,* and *A. pulverulentum.* Then for joining "Los Amigos del Jardin Botanico Las Cruces" we were able to choose a plant of the graceful and delicate *Drymophloeus olivaeformis* and the unique *Chamaedorea amabilis.*

One of the most exciting finds on the trip for me was a *Polystichum* my unbotanical husband (actually a most understanding financial backer) discovered at 1200 m on Cerro de la Muerte. He insisted to the driver that we had to get out frequently on that rapid ascent as the flora changed continually. The group scattered in all directions and I located two interesting ferns, perhaps a *Polystichum* and an *Asplenium,* but husband Clifford returned with an exceptional *Polystichum.* The dark green fronds are quite long and linear with the individual pinnules very congested on the pinnae, and the stipe and rachis are covered with rusty cinnamon scales. I'm going to be trying it this winter for cold hardiness here in the coastal Northwest. We had another stop near some enormous felled trees for the bromeliad collectors and I found *Jamesonia,* two species of *Elaphoglossum,* many *Asplenium, Blechnum* and *Polypodium.* In addition to occasional tree ferns at this cooler elevation there was a short-trunked *Blechnum* (perhaps *B. lineatum)* with such stiff erect fronds it reminded one of a cycad.

The mid and lower elevation roadsides were lined with *Lycopodium, Gleichenia, Blechnum,* an occasional *Adiantum* grouping, and who could keep track of the endless variety of *Polypodium* on trees and fence posts. If I missed naming any it's not because I didn't see them but because I couldn't formally address them.

We travelled to one other OTS station, La Selva, in North Central Costa Rica. La Selva is a student-run botanic station for tropical studies. There we felt truly in the jungle as we rode in a 25 foot motorised canoe-like boat in the sweltering heat, slapping insects, and pointing out alligators to each other. The heavy heat and humidity slowed down our bodies but not our enthusiasm for new finds. However, here there was no fern information available and other than the obviously recognizable *Polypodium (Phlebodium) aureum* and other identifiable genera most of my finds are still a mystery. But it was here I first encountered *Zamia Skinneri* in its native habitat. Another fortuitous find was the tall pinnate-leaved palm *Welfia georgii* whose new fronds emerge maroonish-red. We were able to collect seed from a farmer's field on our way back to San Jose.

Our last week was spent visiting areas of interest just two or three hours from San Jose. The agricultural station, CATIE, at Turrialba, was not only a delight at which to stay but also very rewarding on the botanizing side. Director Dr. Leon Glicenstein kindly escorted us through his palm collection where we found viable seed of *Astrocaryum confertum, Areca aliciae, Areca cathecu* (Betel-nut), *Raphia taedigera,* and *Livistona rotundifolia.* And who could resist sampling the red fruit of *Synsepalum dulcificum* which makes sour foods taste sweet for some time after it is chewed. CATIE raises some 1200 kinds of coffee and is developing a less spiny-trunked *Bactris gasipaes (utilis),* (peach-pit palm), for ease in harvest. The peach-pit fruits are roasted and then hawked on the street corners in San Jose and other cities. It is the colour and texture of a yam with a bit less flavour, I thought.

But the real fun was traipsing down the undeveloped river trail where *Adiantum macrophyllum* and *A. anceps* unfurl their magnificent large-pinnuled segments from the wet bank. This area was particularly rich in endemic plants and we marvelled at the range of anthuriums, begonias, gesneriads, philodendrons, bromeliads, tillandsias, orchids, palms, ferns, and etc. *Zamia Skinneri* was at its most abundant here and in addition to many of the *Chamaedorea* and *Geonoma* palms we'd seen elsewhere we found the charming window palm, *Rheinhardtia* and the spiny *Acrocomia.*

I can't close without mentioning Captain Hope's Nursery in Cartago. Although no ferns are raised here this is a nursery of truly impressive dimension and importance. It is here that some 750 workers grow, breed, and harvest new varieties of geraniums, petunias, impatiens, gerberas, abutilon, hibiscus, and countless other horticultural treasures for gardeners of the world. It was all quite a thrill to meet the men responsible for the lovely New Guinea and fancifrills impatiens that lend splashes of colour to my hardy fern beds every summer.

Additional information:

Membership in The Friends of Las Cruces is $15.00 per annum. Members will receive a newsletter from time to time. For those who visit supplied with import permits they will receive plants. For those unable to visit, the garden is planning a special list of seeds of choice tropical plants to be sent in lieu of plant distribution.

Due are payable to: Jack Weaver, Los Amigos del Jardin Botanico Las Cruces, Apartado 10, Santa Ana, Costa Rica.

EDWARD JOSEPH LOWE

C. R. Phillips (nee Lowe)

Edward Joseph Lowe was born on 11th November 1825 and lived at Highfields, Nottingham, now part of Nottingham University. He started life-long meteorological records at the age of fifteen and later sent daily telegrams to the Admiralty and the Board of Trade. He was the inventor of dry powder tests, used in observation balloon ascents, and he help Professor Baden-Powell with experiments for the British Association. He wrote the *Climate of Nottinghamshire* and several books on meteorology.

Lowe was elected a Fellow of the Royal Astronomical Society in 1848 and was one of the founders of the Meteorological Society. He became a Fellow of the Geographical Society in 1853 and, in that year, the first part of *The Natural History of British and Exotic Ferns* was published. He also wrote *The Conchology of Nottinghamshire* and helped Professor Edward Forbes with *British Mollusca.* He was an expert on snails and was always proud of the fact that he discovered a new British worm (*Megascolex rigida,* Baird) amongst his ferns. He was elected a Fellow of the Linnean Society in 1857 and he wrote *British Grasses* in the following year. After this came *Beautiful Leaved Plants* (containing three exotic ferns) in 1861 and *New and Rare Ferns* in 1862.

He went to Spain in 1860 as a member of a Government team to study an eclipse of the sun. He was left in charge of the meteorological station in Santander and took the opportunity to look for Spanish ferns.

E J Lowe

One of E J Lowe's Fern Houses.

In 1867 he was elected a Fellow of the Royal Society and later became an Honorary Life Member of the Royal Horticultural Society. He won many cups and gold, silver and bronze medals, at their shows.

In 1890 he wrote *British Ferns* in six weeks. This book, published in the Young Collector series, describes forty-five species of native ferns, with details of where they could be found at that date. There is also a list of known hybrids and some notes on cultivation. His last, and most controversial work, was published in 1895. *Fern Growing* is his account of fifty years of hybridising and cultivating his ferns and includes notes on some of his experiments to explain his theories of cryptogamic parentage. Some experiments are apparently repeated but, according to his grand-daughter, he used to do the same experiment for several years to make sure the answer was correct.

E. J. Lowe was married in 1849 and he had two sons who were not allowed to leave home. The elder who was married and had two children, worked the estate and managed the finances for three generations. The younger was a pioneer photographer and took most of the photographs for his father's books. They all moved to Shirenewton Hall, Monmouthshire in 1880 because "the neighbourhood of Nottingham was singularly deficient in ferns". He was Deputy Lieutenant for Nottinghamshire and became the same for Monmouthshire when he moved.

One of E J Lowe's Fern Borders

J. D. Lovis in his most interesting and sympathetic assessment of Lowe's work, states "it would scarcely be possible for one man to give so many experiments, including some of a high degree of complexity, the attention and critical analysis they would properly require." (Lovis: Fern Hybridists, 1. E.J. Lowe. *Brit. Fern. Gaz.* 9 (8) 1967). This is a likely supposition; on the other hand, Lowe was unique in being able to devote all the time and energy in his long life to his studies.

His grand-daughter, who lived with him, remembered that the children were allowed to help with the meteorological recordings, as long as they were strictly accurate but, although he had two gardeners, no one was permitted to help with the fern experiments and he kept all his notes himself. He was not at all despotic but merely disinterested in finance. He gave away or exchanged his ferns and was a kindly man and very democratic for his times. He entertained dukes and under-gardeners and they were all treated alike, as long as they cultivated ferns. When at home, he spent his mornings writing in his library. He had a huge world-wide correspondence as well as articles and his books to write; his afternoons were spent doing his experiments or tending his ferns.

Unfortunately his elder son predeceased him and when Lowe died his grandson was fighting in the South African War. Shirenewton Hall with all the contents, including his famous library and all his letters and notes, was sold. Some of the ferns went to Clifton Zoo but everything was dispersed before the return of his grandson who tried but failed to trace any of his grandfather's records.

The above was compiled from "Some Account of the Family of Lowe" by Otto von Braunstorff, published in Dresden in 1896 and from the unpublished notes of his grand-daughter, the late Mrs. Graves. The illustrations are from old prints, found loose in one of his fern books.

(Following the receipt of this article from Mrs. C.R. Phillips, a great grand-daughter of E.J. Lowe, a visit has been paid to Shirenewton Hall by Matt Busby to find out if any relics of his ferns still remain. I append his report on the visit. – Ed.)

The present owners, Mr. and Mrs. E.A. Hayward, who only moved into the Hall this year and were unaware of E.J. Lowe's connection with ferns, kindly allowed me to inspect the garden and take photographs. It is partly wooded with large areas very suitable for fern growing, and I found several clumps of male and lady ferns together with a few hartstongues and common polypodies, all of them quite normal. On the right-hand side of the drive in a low area of rockwork, certainly Lowe's work, I found two varieties of *Polystichum setiferum.* Since Lowe's day, the Hall has been owned by a wealthy family named Liddel who had business interests in the Far East, and the garden has several features with a Japanese influence including a Japanese Garden at some distance from the house. Obviously, in the time of Lowe this had been just pasture but is now a most delightful garden, and in it I found the remains of the old fern collection. It would appear that when it had been laid out the Liddels moved most of Lowe's ferns into it. Some are normal species and with them are varieties of *Asplenium scolopendrium, Athyrium filix-femina, Dryopteris filix-mas, P. aculeatum* and *P. setiferum,* also *Osmunda regalis.* I collected a number of fronds for pressing, and for exhibition at the next meeting of the Society, when I can also show slides taken in the garden.

A.R. Busby

FERN NOMENCLATURE – OLD AND NEW

J W Dyce

In our Newsletter (predecessor to our present *Bulletin*) No. 8 of November 1970, I published a list of the up-to-date names of the British Ferns along with all their older names, as a guide to help members to find their way around the old fern books and tie-up the names used therein with present-day ones. In the intervening 8 years more changes have taken place, and many new members have joined the Society, so a revised list may serve a useful purpose. There are members, myself among them, who do not take too kindly to this continued name changing, but there is nothing we can do about it; the next decade will no doubt see many more, so that some future scribe (not me!) in the Society will feel impelled to revise this list once again.

The species are listed under their latest generic and specific names, with the older ones shown alongside.

Adiantum capillus-veneris
(Maidenhair Fern)
Anogramma leptophylla – Gymnogramma leptophylla
Asplenium adiantum-nigrum
(Black Spleenwort)
A. X alternifolium – A. germanicum, A. breynii

A. billotii (Lanceolate Spleenwort)	– A. lanceolatum, A. obovatum
A. ceterach (Rusty-back Fern)	– Ceterach officinarum
A. fontanum	
A. marinum (Sea Spleenwort)	
A. ruta-muraria (Wall Rue)	
A. scolopendrium (Hart's-tongue Fern)	– Phyllitis scolopendrium, Scolopendrium vulgare
A. septentrionale (Forked Spleenwort)	
A. trichomanes (Maidenhair Spleenwort)	
A. viride Green Spleenwort)	
Athyrium distentifolium (Alpine Lady Fern)	– A. alpestre, Polypodium alpestre Pseudo-athyrium alpestre
A. filix-femina (Lady Fern)	
A. flexile	– Polypodium flexile
Blechnum spicant (Hard Fern)	– Lomaria spicant
Botrychium lunaria (Moonwort)	
Cryptogramma crispa (Parsley Fern)	– Allosorus crispus
Cystopteris alpina (Alpine Bladder Fern)	– C. regia
C. dickieana	
C. fragilis (Brittle Bladder Fern)	– C. dentata
C. montana (Mountain Bladder Fern)	
Dryopteris (Buckler Ferns)	– Lastrea, Nephrodium
D. aemula (Hay-scented Buckler Fern)	– Lastrea foenisecii, L. recurva
D. austriaca (Broad Buckler Fern)	– D. dilatata, Lastrea dilatata
D. carthusiana (Narrow Buckler Fern)	– D. lanceolato-cristata, D. spinulosa, Lastrea spinulosa
D. cristata (Crested (?) Buckler Fern)	– Lastrea cristata
D. expansa	– D. assimilis, Lastrea dilatata alpina
D. filix-mas (Male Fern)	– Lastrea filix-mas
D. oreades (Dwarf Male Fern)	– D. abbreviata, Lastrea propinqua

D. pseudomas (Scaly Male Fern)	– D. borreri, Lastrea pseudomas, L. paleacea
D. X uliginosa	– Lastrea uliginosa
D. villarii (Rigid Buckler Fern)	– Lastrea rigida
Gymnocarpium dryopteris (Oak Fern)	– Dryopteris linnaeana, Lastrea/Phegopteris/ Polypodium/ Thelypteris dryopteris
G. robertianum (Limestone Fern) (Limestone Polypody)	– Polypodium robertianum P. calcareum, Thelypteris calcareum
Hymenophyllum tunbrigense (Tunbridge Filmy Fern)	
H. wilsonii (Wilson's Filmy Fern)	– H. unilaterale, H. peltatum
Ophioglossum lusitanica Dwarf Adder's Tongue)	
O. vulgatum (Adder's Tongue)	
Oreopteris limbosperma (Mountain Fern) (Mountain Buckler Fern)	– Thelypteris oreopteris, T. limbosperma, Dryopteris oreopteris, D. montana, Lastrea montana
Osmunda regalis (Royal Fern)	
Phegopteris connectilis (Beech Fern)	– Polypodium phegopteris, Dryopteris/Gymnocarpium/Lastrea/ Thelypteris phegopteris, Phegopteris polypodioides, Phegopteris vulgaris
Pilularia globulifera (Pillwort)	
Polypodium vulgare (Common Polypody)	– An aggregate of 3 species, P. australe, P. interjectum, P. vulgare (sensu stricto)
Polystichum aculeatum (Hard Shield Fern)	– P. lobatum
P. lonchitis (Holly Fern)	
P. setiferum (Soft Shield Fern)	– P. angulare
Pteridium aquilinum (Bracken)	– Pteris aquilina
T. palustris (Marsh Fern)	– Dryopteris thelypteris, Lastrea thelypteris, L. palustre
Trichomanes speciosum (Killarney Fern) (Bristle Fern)	– T. radicans
Woodsia alpina (Alpine Woodsia)	– W. hyperborea
W. Ilvensis (Oblong Woodsia)	

FERN HUNTING IN THE HOLY LAND

Eric Hardy

Ein Fara, the Spring of the Mouse, is an arid, rocky gorge beginning close to the high Jerusalem hills and descending quickly, via the Biblical Brook Cherith of Elijah, down to Jericho in the hot rift of the Jordan valley, a dramatic ecological change. Here one January morning my interest in the ferns of the Holy Land was stimulated by finding particularly fine plants of the same rustyback spleenwort, *Asplenium ceterach,* I had seen growing on the rocks by Derbyshire's Lathkill Dale path below Youldale, and other places, under much colder and wetter conditions. The little water here gave rise to several plants of the maidenhair fern, *Adiantum capillus-veneris,* though not in the wonderful profusion I found among the more humid springs of the River Barada beneath Damascus, a profusion equal to the best I have seen down the deep grikes in the limestone of the Irish Burren, between Ballyvaughan and Lisdoonvarna in County Clare. I found it again on the dry, stony west side of Jerusalem, at excavations at Mount Zion, also on the hill above Suba Vaillage at Abu Ghosh and the nearby Jewish settlement of Kiryet Anavim below Jerusalem. It grew abundantly and luxuriously in caves at the olive groves a mile down the railway from Jerusalem, while smaller, more stunted plants were on the open limestone rocks. I saw a plant beside the irrigation channel on the dusty Judean hillside by historic Solomon's Pools, outside Bethlehem. *A. ceterach* grew also at Solomon's Pools and on the rocks of a small hill above the railway a short distance coastwise from Jerusalem, and at Abu Ghosh. The maidenhair was plentiful along the moist banks of a fast-flowing tributary of the Barada, out in the dusty Syrian hills but at the bottom of a deep thickly-vegetated ravine, near the village of Ain el Haeour and near the rough mountain road across the Anti-Lebanon range. I saw it also at the ruins of St. Peter's Church near the pool of Solloam, Mount Zion, on the edge of Jerusalem, and it was the only fern I came across in Sinai. These two British ferns provided as homely a welcome as seeing the same Plough in the sky at night.

A score of different ferns came our way in the days of the now defunct Jerusalem Naturalists' Club. The same *ceterach* grew also in several walls and cracks in the rocks from Mt Cassius and Hermon to Wadi Beidan and Wadi Kelt in the arid western mountains of the Dead Sea, from Baniyas and Barze (Damascus) to Bhamdun (Lebanon) and Bab el Wad in the Jerusalem hills. Maidenhair became a common find where there were walls or rocks near water, or in damp caves from Bab el Wad and Tel Aviv to Baniyas, Hermon, Barze and Tripoli. Near the Greek shrines at Baniyas, at the entrance to caves outside Tripoli, the lower roadside at Bab el Wad, and rocks south of Deir es Sheikh near Jerusalem, grew the delicate little annual Jersey fern, *Anogramma leptophylla,* a rare inhabitant of vertical roadside earth-banks in the Channel Islands. Another Syrian was our common polypody, *Polypodium vulgare,* on damp shaded rocks by the river below Baniyas springs and on the wooded banks of a stream near Kasab.

I found the delicate little lip-fern, *Cheilanthes fragrans,* on my Anti-Lebanon expedition near Damascus, in clefts of rocks at Bab el Wad, and at the gorge of Ein Fara. It grows also at Bhamdun in Lebanon, on Mt. Cassius, Hermon, the rocky hill wood opposite Abu Ghosh, and exposed on sun-baked rocks at the top of a bare hill beside the railway there; it is also found by Solomon's Pools in May. The largest most profusely growing specimens I found of this dwarf hill fern with the odour of new mown hay, were in a cave near the Jerusalem railway in June. The fern which intrigued me most was the woolly *Cheilanthes* *vellea (Notholaena lanuginosa)* which I first found growing by the spring of Ein Feshka, a sub-tropical enclave on the shores of the Dead Sea, not far from the caves of the famous Scrolls. Later, I found it near Tiberias in Galilee and down the deep wudyan of Moab. The whole of the underside of the fronds is a woolly, felty grey-brown, with the top surfaces greyish green. It grows in cracks in the rocks and tombs near the Greek shrines at Baniyas. A close relative, *C. marantae,* with unusually white scales, was collected by a friend on a very dry steep bank in the forest near Kasab on the Turkish frontier of Syria, where the bracken-like *Pteris longifolia* is also found. Confined to Lebanon and Cyprus is the rigid buckler fern, *Dryopteris libanotica,* growing at Kasab and Baniyas Castle. Another Briton, *A. adiantum-nigrum,* was found by a colleague in the Syrian woods near Kasab and on Mt. Cassius. I found no ferns on an eight day journey through the Wadi Aravah from the Dead Sea to the Red Sea.

Many of the ferns of the Holy Land have become scarcer with modern changes and collection. The Royal fern, *Osmunda regalis,* used to grow by the upper Jordan and on the banks of the Leontes, common hartstongue, *A. scolopendrium,* in caves from the Lebanon to central Israel, and the related *A. hemionitis* in caves at Mount Gerizim. Hard fern, *Blechnum spicant,* lingers in Lebanon, even the humble bracken by the Leontes in Galilee. *Cystopteris fragilis,* the brittle bladder fern, grows at 6000 feet in Lebanon, which illustrates how alpines grow highest in the southernmost parts of their range. This is probably one of the world's most widely distributed ferns, growing from Greenland to Kerguelem Island in the Pacific.

Adder's tongue, maidenhair spleenwort, lady fern, male fern, rigid buckler, prickly shield, smooth rock spleenwort, lanceolate spleenwort, and *Pteris cretica* are also among the Holy Land's fern flora. This is most numerous among the Mediterranean flora of the hills of Lebanon, the Anti-Lebanon and northern Israel, becoming less further south and least in the hot arid Sinai and Jordanian desert lands where ferns are confined to the more shaded, humid wudyan or ravines. There, contrary to many ideas, torrential rain falls on rare occasions and stores underground. Likewise, the delicate clubmoss of English greenhouses, *Selaginella denticulata,* grows on shaded rocks above Beirut in the north, but not in the south. This may explain the absence of ferns in the abundant flora of the Bible. As there was apparently no herbal or food use for these plants, they were probably as unknown to the ancient chroniclers as to the modern flower-clutching tourist. The royal fern got into the often misleading and erroneous Bible Garden at Bangor Cathedral, North Wales, in association with St. Mattias. The Garden's originator, the late Professor T. Whitehead, whose handbook to the Garden is full of botanical errors, erroneous guesses and repeated fallacies, was ignorant of all the modern work on Biblical flora by Professor Zohary and his successors at the Hebrew University of Jerusalem Botany Department where most of our expeditions ended for discussion. It needs more than a brief packaged tour to the Holy Land to understand the ecology of its fascinating flora; we spent two years on field work and still had much more to explore. Biblical natural history suffers a plethora of armchair compilations, inventing or repeating errors of assumption without any scientific foundation, by academics as well as old wives. Consider the Christmas Fern, *Polystichum acrostichoides;* it comes from North America, not the Holy Land. No such nickname has been given to its British relative, the holly fern, *P. lonchitis,* a rare fern of our maintains.

A LITTLE-KNOWN HARDY FERN COLLECTION IN YORKSHIRE

John Barnett

Austwick in North Yorkshire is the home of one of the best hardy fern collections in the country. I am, of course, referring to the splendid one owned by Jim Lord, which was acquired in the 1930's by his father from his father-in-law Robert Bolton of Warton near Lancaster.

Not many people, however, are aware that Austwick also possesses another earlier but little-known collection dating from the end of the 19th century, which is fully described by B H Speight in his *The Craven and North-West Highlands* published in 1892, from which the following extract comes.

> "In peeping about the country gardens sometimes you come across a rare flower or fern, which may have found a congenial home, or haplessly otherwise, by such removal from its native scars or moorland fells. One of the most interesting cultivated collections I have met with is that of Mr. Wm. Handby, of Austwick, who two or three years ago had nearly 70 kinds of ferns growing in his little garden-plot, and all of his own gathering from the immediate neighbourhood. As he has carefully preserved a list of them, and as they are fairly representative of the native ferns of this district, their enumeration here will be referred to with interest. Doubtless, were a careful search to be made of the whole area, the list might be considerably extended.
>
> *Polystichum lonchitis* (from various localities), *P. aculeatum, P. angulare,* var. *lineare,* var. *gracile,* var. *cristatum,* var. *proliferum Wollaston,* var. *polydactylum,* var. *apuaeforme, Ceterach officinarum* (fine bushy plants from Moughton, Swarth Moor, and Malham), *Asplenium adiantum-nigrum* (from Wharfe), *A. viride* var. *incisum, A. trichomanes, A. ruta-muraria, A. marinum* (not local, from Heysham), *Lastrea filix-mas,* var. *grandiceps,* var. *digitata,* var. *abbreviata,* var. *Jervisii,* var. *Barnesii,* var. *Bollandiae,* var. *crispa,* var. *incisa, L. filix-foemina, L. thelypteris, L. cristata, L. dilatata, L. aemula, L. oreopteris, Polypodium vulgare,* var. *semilacerum,* var. *cristatum,* var. *Cambricum, P. dryopteris, P. phegopteris, Athyrium filix-foemina,* var. *corymbiferum,* var. *laciniatum,* var. *thyssanotum,* var. *Frizelliae,* var. *Barnesii,* var. *rectangulare,* var. *laciniatum-confluens,* var. *grandiceps,* var. *ramo-Frizelliae,* var. *diffisso-multifidum,* var. *Victoriae, Cystopteris fragilis* var. *Dickieana, Scolopendrium vulgare,* var. *crispum,* var. *subcornutum,* var. *polyschides,* var. *polycuspis-undosum,* var. *gymnosorum,* var. *bimarginato-cordatum, Blechnum spicant,* var. *polydactyla,* var. *concinnum, Allosorus crispus* (Helwith moss), *Botrychium lunaria.*

Although Mr. Wm. Handby was doubtless indulging in a little gentle leg-pulling, he did indeed own a very interesting collection of ferns, some of which have survived to the present day. Sadly, however, neglect had reduced the collection considerably and the present owner, Mr. Handby Ewbank, recently asked Jim Lord and me to restock his fern border. In return, he very kindly gave us some of his surplus plants and thus I acquired a small clump of *Dryopteris filix-mas* 'Bollandiae' and a quadripinnate form of *Polystichum setiferum.* This latter plant is unlike the plumoso-divisilobes of Jones and Fox and only exhibits its full character when well grown when it is a truly superb plant.

Indeed there still exist rare and interesting plants in many old country gardens, which await discovery.

SOUTHPORT FLOWER SHOW 1978 – 17/19 AUGUST

J W Dyce

This year the Show was held in perfect weather, with no rain, and neither too hot nor too cold. The year has been a good one for ferns and this was reflected in the quality of the exhibits – sun scorch was absent from all of them. The usual exhibitors supported the competitive fern classes, and it was pleasing to see one new entrant, a lady, carrying off some of the prizes with very well-grown plants.

Noel Brookfield's large group once again won the premier prize and the award of our Society's Silver Challenge Trophy. It was a very good display with well-grown ferns, among them some of the well-known old varieties, *Athyrium filix-femina* 'Victoriae', 'Cruciatum', 'Frizelliae' and a selection of 'Plumosum' and 'Cristatum', *Polystichum aculeatum* 'Pulcherrimum Bevis', some *P. setiferum* variants, *Polypodium australe* 'Cambricum' and its varieties and several small *Osmunda regalis* plants. Rodney Brookfield came second with an entry very little inferior to that of his father, and much the same ferns featured in it. A very inferior entry came third and I was rather surprised to see that it was given a prize.

The other classes contained some first-rate ferns, among them *A.f.* 'Clarissima', 'Frizelliae', 'Victoriae', *Dryopteris pseudomas* 'Angustata-cristata', 'The King', *P. aculeatum* 'Pulcherrimum Bevis', 'Pulcherrimum Drueryii', *P. setiferum* 'Plumoso-divisilobum Iveryanum', *Asplenium scolopendrium* 'Bolton's Nobile', *P. australe* 'Cambricum' varieties and a superlative very large plant of *Adiantum raddianum.*

The prize-winners are listed below in order of winning –

Class 7	Group of hardy British ferns arranged naturally in an area not exceeding 100 square feet J Brookfield and Son, R F Brookfield, W W Howarth
Class 8	Six hardy British ferns (dissimilar) R Trippitt, J Brookfield and Son
Class 9	Six greenhouse ferns (dissimilar) J Brookfield and Son, no second awarded, W W Howarth
Class 10	Three hardy British ferns, 3 distinct species, NOT varieties Mrs S G Tordoff, J Brookfield and Son
Class 11	Three foreign ferns, hardy in Great Britain R Trippitt, J Brookfield and Son, R F Brookfield
Class 12	Three scolopendriums R Trippitt (one entry)
Class 13	Three polypodiums R Trippitt, J Brookfield and Son, R F Brookfield
Class 14	Three polystichums Mrs S G Tordoff, R Trippitt, J Brookfield and Son
Class 15	Three athyriums Mrs S G Tordoff, R Trippitt, J Brookfield and Son
Class 16	Three dryopteris Mrs S G Tordoff, R Trippitt, J Brookfield and Son
Class 17	Three plants, gymnocarpium, phegopteris and/or thelypteris R Trippitt, J Brookfield and Son

Class 18 Three aspleniums, excluding Asplenium scolopendrium
Mrs S G Tordoff, R Trippitt
Class 19 One British fern
A R Busby, R Trippitt, Mrs S G Tordoff
Class 20 One greenhouse fern
A R Busby, no second awarded, Mrs S G Tordoff

We had a new judge this year – Reginald Kaye has moved on to judge the alpine section at the Show, and Mrs Hazel Key, of Fibrex Nurseries, has taken his place in the fern classes.

Our Stand in the Societies' Tent was organised by Matt Busby who was in attendance, assisted by Jimmy Dyce, for the duration of the Show, and we were assisted part-time by some of our visiting members – 17 called, among them our President and Mrs Walker, who spent some time with us. Many non-member callers who over the years at the Show have become old friends, called to chat about ferns and thus helped to pass many pleasant hours, and we had the usual many requests for help with identifications and other problems. The Stand was decorated with pot ferns and a large number of vases filled with fronds of various varieties, and a selection of fern books and our publications were on show. Matt had his demonstration exhibit showing the propagation of ferns from spores and this attracted a lot of interested attention from members of the public passing by. Many were stimulated to ask questions and learn more about this fascinating subject – who knows! we may have started some of them off on a new interest which will come to absorb them just as much as it does us!

YOU HAVE TO SMILE !

A R Busby

Overheard at Southport Flower Show

A woman passing with a recently purchased *Pteris cretica* 'Albo-lineata' in her shopping bag, glanced at the Society's Fern Stand and remarked – "I would not give a fern house room".

A gentleman after having the spore germination display explained to him, pointed to the pot of healthy prothalli and commented – "Pity you have that nasty growth of algae on that one".

An obviously keen vegetable grower, surveying one of the fern exhibits, pointed to a lady fern with finely divided dense cresting and asked the Secretary who happened to be standing by, what THAT was doing in a fern exhibit. He adamantly refused to believe it was a fern, and with a pitying look stalked off in high dudgeon, remarking – "You can't fool me – I know parsley when I see it".

Older members often relate a story told by the late Rev E A Elliot when he was in charge of our Stand many years ago. A passerby stopped, stared intently at the name 'British Pteridological Society' on our name board, then noticing the reverend gentleman's dog-collar, asked quizzically – 'Is that a new religion?"

I am sure that other members could relate amusing tales of things heard and seen at Southport, and at other shows or places where ferns make contact with the general public. Please pass them on to me.

WORLD FERN SOCIETIES

J W Dyce

Continuing this series, introduced in the last issue of the *Bulletin*, we give some information about more of the newer societies which in the postwar years have come into existence as a result of the worldwide awakening of interest in ferns in both the botanical and horticultural fields. We cannot claim to be in touch with all of them and shall be glad to hear from members – and others – who can add more to our list, with, if possible, some information about them which we can publish.

THE INTERNATIONAL TROPICAL FERN SOCIETY

Among America's newer societies is this very active, go-ahead one with its headquarters at 3720 S W 34th Street, Miami, Florida 33165. As well as having several chapters in its home area, it is a federation of several district and county fern societies extending far beyond the Florida peninsula. The chairman of the governing board, Mr Milton D Piedra, tells me the Society was founded in 1975 and within 6 months had over 1200 members – the number now in less than 3 years is nearly 6000 in 50 states of the USA and 36 foreign countries. There is thus a very large pool of enthusiasm on which to draw for its many activities which include monthly meetings by the Society and by the more than a score of its associated bodies, fern forays, workshops, fern shows and fern exhibitions on a vast scale, conducted tours, lectures to all kinds of organisations and advertising in the leading Florida papers and on radio and television.

A monthly journal, the *Rhizome Reporter*, is published and when I saw a copy crammed full of interesting reading with useful informative articles covering the whole field of fern interest, I decided forthwith to join the Society. For US dollars 7.00, the present annual dues, it is a real bargain!

We congratulate the Chairman, Mr Piedra, on the tremendous achievements of his Society and send our good wishes for its continued success.

SCHWEIZERISCHE VEREINIGUNG DER FARNFREUNDE (SVF)

The following letter, dated 16 December 1977, was received from Dr J Schneller, Obere Heslibachstrasse 16, CH-8700 Kusnacht, Switzerland, a Swiss member of our Society. We are very pleased to welcome this new fern society, the first, to our knowledge, on the European Continent, and to wish it every success.

"For some years Swiss fern friends organised regular meetings and this year they decided to form a society. It has been decided at Sargans Castle, in the Canton St Gallen, on 8 September 1977, that the society will be called *Schweizerische Vereinigung der Farnfreunde (SVF).* The President, Dr H Nageli (also a member of our Society - Ed.) requested me to contact other such organisations in different parts of the world. The executive committee is formed of seven persons. The Society has at the moment about 45 members who are mainly interested in floristic aspects and field botany. The Society also would be pleased to have the opportunity for spore exchange."

REVIEWS

WELSH FERNS, Clubmosses, Quillworts and Horsetails by H A Hyde, A E Wade, Sixth Edition, revised, expanded and rearranged by S G Harrison, 178 pages, illustrated in black-and-white with 14 plates and 82 text figures. 140 x 220 x 16 mm. National Museum of Wales, Cardiff, 1978. Price £3.00.

The text of this sixth edition remains basically unaltered except where taxonomic and nomenclatural changes have had to be made. Expansion in the descriptions of hybrids reflects current trends. Lists of herbarium specimens have been extended for some taxa, or omitted where the numbers had become too large and every vice-county in Wales was represented.

The fifth edition was reviewed in the *British Fern Gazette,* Vol 10: 105 (1969) and over the years has proved a most useful reference book on British ferns; it was ridiculously cheap at £1.25. The new edition is still priced at a very moderate figure and is excellent value for the money.

ATLAS OF FERNS OF THE BRITISH ISLES by A C Jermy, H R Arnold, Lynne Farrell and F H Perring. 101 pages, 210 x 295 mm. Published jointly by the Botanical Society of the British Isles and the British Pteridological Society, London 1978. Available from F & M Perring, Oundle Lodge, Oundle, Peterborough PE8 5TN, England. Price (paperback) £3.50 (including packing and postage).

A full review of this book, by Dr C N Page, appears in the 1978 issue of the *Fern Gazette* (Vol. 11 part 6), but for the benefit of members who do not receive the Gazette it is reviewed briefly here.

The book is a second edition of the pteridophytic section of the *Atlas of the British Flora* published in 1962. It is a tribute to British botanists and especially to British pteridologists, not only the professionals but to the amateurs who have contributed much over the years since 1962 to make this edition a success. It will supply a real need and will clearly stand as a pteridological milestone, and a valuable foundation on which further recording can be based. The present known ranges are given for 80 pteridophyte species or subspecies (including 24 fern allies) and 29 hybrids (including 7 fern allies) in 95 clear, large format (17.5 x 19.5 cm) black and white dot maps which appear one per page. Species are recorded on the now familiar 10km British grid squares used for the original *Atlas,* and each map is accompanied by textural comments on the taxa by A C Jermy

A high standard of presentation has been largely achieved, but some unfortunate errors have occurred. We are not told that open circles, in general, denote pre-**1950** records and solid dots post-**1950** records (not 1930 as in the old *Atlas)*; but sometimes (in map keys to pp 15, 22, 50, 52, 55, 63, 77, 79, 84, 92) solid dots are used, unnecessarily, to distinguish between two species on one page; on pp 58 and 59 solid and open circles are used in another way; on pp 50 and 52 solid dots denote all records. In the index italic page-numbers refer to a mention in the text. *Ambrosiae* should be corrected to *ambroseae* on pp 87, 95, 100. We have found that some of our records passed on to the Biological Records Centre have not been included, but this is understandable since the work of collating and presenting in map form the vast volume of information fed into the Centre made some errors of omission inevitable.

It is still not a volume which can be carried in the pocket in the field, something which many of us would find of great value, but it is much more manageable than its predecessor which of course had to accommodate *all* plant records, not just the pteridophytes. A second copy will be useful to carry in the car or in the rucsac, for just as that first *Atlas* did 16 years ago, the new *Atlas of Ferns* shows that there is still much more work to be done on the distribution of our ferns and it will stimulate us to greater efforts.

J W Dyce

FERNS FOR MODERN LIVING by Elaine Davenport, illustrated by John Pike. 80pp, 112 illustrations in colour plus 9 on covers. 229 x 152 mm. Merchants Publishing Company, Kalamazoo, Michigan, USA, 1977. Price US dollars 2.95. (Not available in this country at present).

The "Fern Craze" has got the USA in its grip and many new and excellent books on ferns are being published. Some of them, in various ways, manage to reach our shores, and among them this very attractive production which was "discovered" by a visitor to the USA and brought back to this country. The description given to me sounded so good that I wrote to the publishers who have kindly sent me a review copy and are arranging to let me have copies for our Booksales.

The book is aimed chiefly at the house and greenhouse grower of ferns, a kind of fern book which is sadly lacking in this country, and although it is written for American consumption it will be equally valuable to the British grower, and indeed to indoor growers worldwide; it also deals with a small number of outdoor ferns. The outstanding thing about it is the large number and excellent quality of the colour photographs, covering most, if not all, the popular indoor ferns, and for this reason alone the book will be a delight to have on one's bookshelves for their pleasing clarity and value for reference and recognition purposes.

With so many illustrations included in a book this size, it will be understood that the letterpress has to be concise and to the point. Descriptive and cultural notes are brief but fully adequate, dealing with soils, watering, temperatures, light and fertilisers. There is also a general section dealing with the same subjects and short chapters on potting, propagation, terrariums, pests and diseases and cultural problems.

If I looked closely there are things I could criticise, such as errors in nomenclature and wrongly applied captions. Such things are regrettable since they tend to be perpetuated in future literature but no doubt the publishers have some friendly critics nearer home, who will ensure that following editions of the book have the necessary corrections made. If I may, however, and I do it reluctantly, I would draw attention to the inclusion of asparagus "ferns". In the opening sentence to the short chapter dealing with them, it is made abundantly clear that they are NOT ferns, but there will be readers into whose minds the fact will not sink, who will enter these plants in fern classes at shows and be disappointed, confused or even belligerent when their entries are not accepted. However, this is too small a matter to cavil over, and the standard of the four asparagus plants depicted is so excellent that no-one can be blamed for wanting to include them among the ferns.

This most reasonably priced book can be highly recommended to the indoor grower of ferns. It is not yet available in this country but can be obtained through our BPS Booksales. Readers in the Americas will prefer to purchase it from outlets nearer home since our price will have to include the freight on a return journey across the Atlantic — nevertheless, still excellent value!

J W Dyce

FERNS by Philip Perl and the Editors of Time-Life Books, 160 pp, fully illustrated in colour. 217 x 280 mm. Time-Life Books, Alexandria, Virginia, USA, 1977. Price US dollars 8.95.

The enthusiasm which enlivens so much of the United States literature shines through *Ferns,* one of the books in the Time-Life Encyclopedia of Gardening. This most attractive volume runs to 160 pages lavishly illustrated with 31 full pages of colour photographs and numerous tinted drawings of ferns, terrariums, etc. The brisk down-to-earth all-made-easy tone which runs through text and pictures removes the fern world from the slightly Victorian atmosphere which it has in Britain, and this alone may make it refreshingly different for readers who feel the 19th century dowdy.

Some BPS members may recognise the frontispiece of the Glasgow case but raise an eyebrow at the "terrarium" and its being "modelled after the Crystal Palace" — rather it is 1870's Moorish. The photographs are of high quality and sharpness, and the one showing the spore release from a maidenhair is exciting. The chapter "The Bostons: a line of freaks" makes us realise what the British pot-plant trade lacks — the wonderful *Nephrolepis exaltata* cultivars; they are like the best curly endive or the most plumose Edwardian athyriums, as far removed from "our" Boston Ladder-fern as the Welsh polypody is from the common polypody. The text is practical, easy to follow, and would inspire the most timid beginner. Both the biology and propagation of ferns are clarified by simple line and colour drawings; it appears that unlike the average BPS member the American grower is instructed to use fertiliser rather like we would on house-plants or outdoors for roses.

Half the book is an illustrated encyclopaedia. It will interest readers on this side of the Atlantic to see old friends with "new" names, such as Deer Fern (blechnum) and Scouring Rush *(Equisetum hyemale).* It is the first time I have seen United States polypodiums in colour; seemingly familiar, *P. glycyrrhiza* strongly resembles our *P. interjectum* and *P. scouleri* our *P. australe.* What surprises by their absence are crested or showy cultivars apart from the magnificent nephrolepis ones; only one other is shown, a fingered *Dryopteris filix-mas.* A feature which may be novel to British readers is the climate zone and frost date maps; these may be common in the USA where the temperature range is greater and the geographical areas covered much vaster.

The work seems well-researched and the majority of the species are described in a clear manner. Readers may have difficulty in recognising the Killarney Fern from the illustration on page 143! However, the book can be heartily recommended and it will appeal equally to the old hand and to the novice.

Alison Rutherford

(We are advised by the publishers' London office that this book is not available in this country but a European edition will be published in Spring 1979 (published simultaneously in English, French, German and Dutch and edited to relate to the respective areas). The UK cost will be £5.95. A supplementary review will appear in the 1979 *Bulletin.* — Ed.)

MEMBERSHIP LIST – Additions and amendments

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Changes of Address

BATTEN Dr David J, Dept of Geology, Marischal College, Aberdeen University, Aberdeen AB9 IAS.
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SHAW Mrs Elaine, Dorrego 2699, 25/6, 1425 Buenos Aires, Argentina.

SPENCER Richard A. Maes-y-coed, I Einios Cottages, Furnache, Machynlleth, Powys, Wales.
TONGE Mrs Gwladys, 32 Horn Street, Winslow, Bucks MK18 3AW.
TURCHAN Michael J, 108 Chapman Street, Watertown, Mass. 02172, USA.

Changes of Name and Other Changes

Delete —	Gibby J M and Mrs Mary	**Re-insert as —**	GIBBY Dr Mary (address unchanged)
	Hall Nigel A		HALL Nigel A and Mrs June (address unchanged)
	Kanamori K		YASUDA K (address unchanged)
	Merryweather J W and Mrs M E		MERRYWEATHER James W, c/o Biology Department, University of York, Heslington, York YO1 5DD.
			ROTHWELL Mrs Margaret E, 8 Howard Street, Fulford Road, York, YO1 4BQ.
	Smith R J		SMITH R J and Mrs Brenda (address unchanged)

Delete from Membership List

Mrs M Bushby
Dr and Mrs C H Catlin
Lord Cochrane of Cults
M J Cooper
J M Craddock
Dr J E Craig (Australia)
P A Denton
C A Devall
Mrs M B Field
Jack Gibson
J B Gibson
I Gower
E E Green
Mrs E Hance
Mrs W E Hazen
M Heki
J C Hodrien
M C Johnson
G Kunkel
Dr S Kurata
D C Lindsay
Lucky S Nursery
Professor J A Macdonald
Mrs L Masse
E Milne-Redhead
Dr M J Morgan
L O'Brien
A J Pearce
Mrs M T Petch
Miss R D Pullinger
R C Reeves
P D Robinson
Dr med Rube
Sarasota Growers Inc
Mrs E E Scoll
Dr A H Sparrow
A M Stirling
Mrs L Strong
R A Todd-White
Miss S M Turtle
A Watson
I F Westwood
Mrs M B Wilson
P R Winstanley
D W Zeunart

OBITUARIES

It is with regret that we announce the following deaths —

Dr Satoru Kurata whose death was recently announced to us was a forestry officer in the Forest Department of the University of Tokyo in Japan, and has published a several volume work on Japanese trees. He also studied ferns and was an active member and officer of the Nippon Fernist Club. He joined our Society in 1967.

Dr A H Sparrow whose death was advised to us in the spring of this year joined our Society in 1971 when he came over from the USA to live in this country for a time.

John S Fudge. As we go to press we have just learned of the sudden death of this member from Portishead, who joined the Society only this year but was already taking an active part in our affairs.

We extend our sympathy to their families.

MEETINGS PROGRAMME 1979

Meetings Secretary	A J Worland, 102 Queens Close, Harston, Cambs. CB2 5QN.
Meetings Committee	J A Crabbe, J W Dyce, M H Rickard, J R Woodhams.
Saturday 10 February	Indoor Meeting at the British Museum (Natural History), Cromwell Road, London SW7 5BD at 2.00 pm.
Saturday 10 February	Annual General Meeting to be held at the British Museum (Natural History), Cromwell Road, London SW7 5BD at 2.15 pm.
Saturday 19 May	Visit to the Fern Houses and outside fern borders at Kew Botanic Gardens. Meet outside Fern Houses at 2.30 pm.
Saturday/Saturday 9/16 June	Week Meeting at Criccieth, Gwynedd, North Wales. **Leader:** Jimmy Dyce **Centre:** Caerwylan Hotel, Criccieth.
Saturday 23 June	Visit to Cambridge Botanic Gardens. Meet at 2.30 pm at the Trumpington Road entrance on A10. **Leader:** Tony Worland.
Friday/Sunday 29 June/1 July	Weekend Meeting in North Somerset **Leaders:** Christopher and Mary Potts **Centre:** The Oak House Hotel, The Square, Axbridge, Somerset.
Friday/Sunday 27/29 July	Weekend Meeting in Edinburgh, including visit to the Botanic Garden. **Leader:** Chris Page **Centre:** Ash Lyn Hotel, 42 Inverleith Row, Edinburgh
Saturday 4 August	Visit to Liverpool Botanic Gardens, Calderstone Park, Liverpool Meet at 2.30 pm at Main Gate. **Leader:** Waldy Pierozynski
Thursday/Saturday 16/18 August	Southport Flower Show Many fern classes showing selection of best varieties Visit the Society's Stand in the Societies' Tent.
Sunday 19 August	Day Meeting in Norfolk. Meet at Horsey Mere, by the windmill at 11.00 am. **Leaders:** Martin Rickard and Tony Worland.
Friday/Sunday 7/9 September	Weekend Meeting at Chepstow, Gwent **Leader:** Matt Busby **Centre:** Beaufort Hotel, Beaufort Square, Chepstow
Saturday 13 October	Indoor Meeting at Chelsea Physic Garden, Royal Hospital Road, London SW3 at 1.30 pm.

REGIONAL DAY MEETINGS

Suitable dates will be arranged by direct personal contact with Organisers —

Midlands:
A R Busby, Department of Biological Sciences, University of Aston
in Birmingham, Gosta Green, Birmingham B4 7ET. Tel: 021 359 3611
Ext. 773

South-west England
Christopher and Mary Potts, 4 Kennel Lane, Webbington,
near Axbridge, Somerset. Tel: Edingworth 545.

Members who would like to receive their Regional Meetings programme should apply to the Organiser, enclosing a stamped addressed envelope.

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Los Angeles International Fern Society
14895 Gardenhill Dr.
LaMirada, CA. 90638, U.S.A.

THE NIPPON FERNIST CLUB
There exists in Japan this large and active Society devoted to the study of ferns which welcomes contact with foreign pteridologists, both amateur and professional.
For further information write to:
Dept of Forest Botany,
Faculty of Agriculture, Tokyo University, Hongo,
Bunkyo-ku, Tokyo, Japan 113.

1979
GOLDEN JUBILEE
SOUTHPORT FLOWER SHOW
The Organisers extend all good wishes for a successful 1979.
Classes for your Society's special interests are available.
Total Horticultural Prizes 1978 – Value £50,000
*
16th, 17th, 18th AUGUST 1979
Schedules and further information from:
The Flower Show Secretary
Dept II, Town Hall, Lord Street, Southport
Merseyside PR8 1DA

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